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# THE IRON AGE

A Review of the Hardware, Iron and Metal Trades.

Published every Thursday Morning by David Williams, Nos. 96, 98, 100 & 102 Reade St., New York.

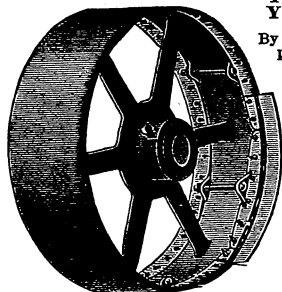
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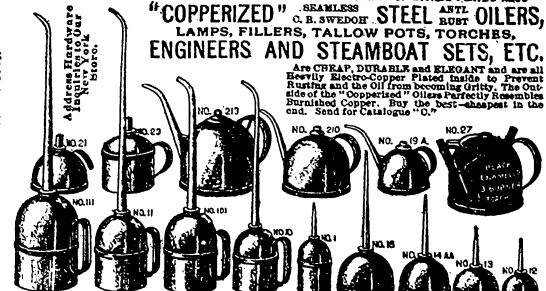
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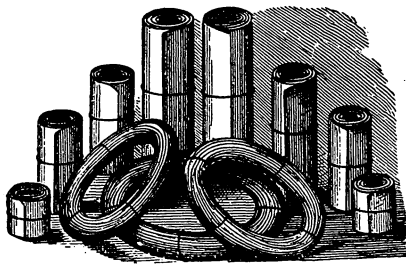
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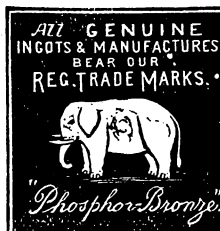
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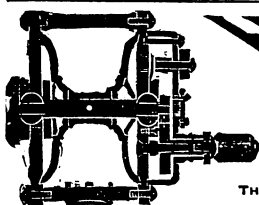
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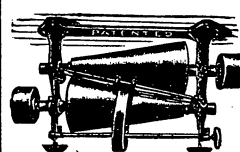
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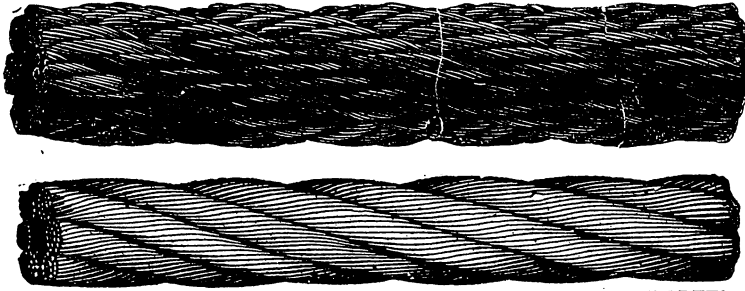
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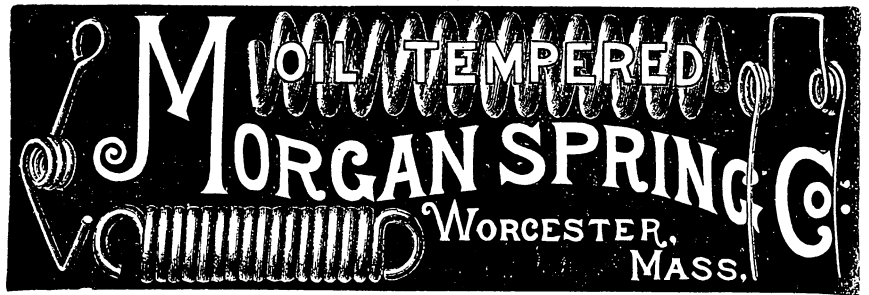
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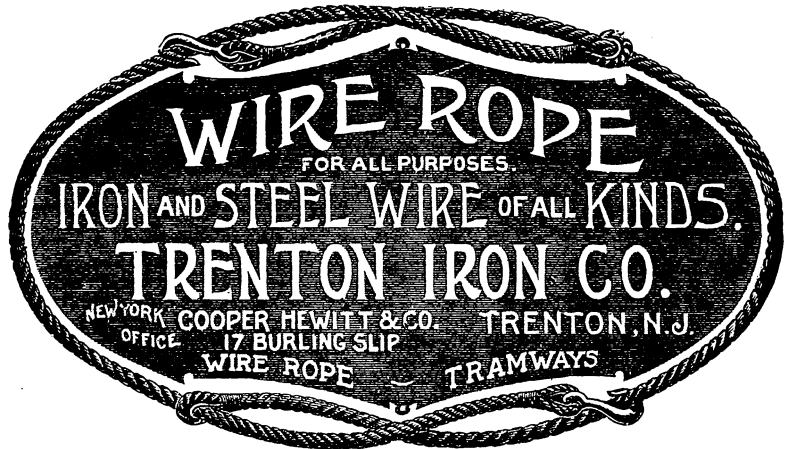
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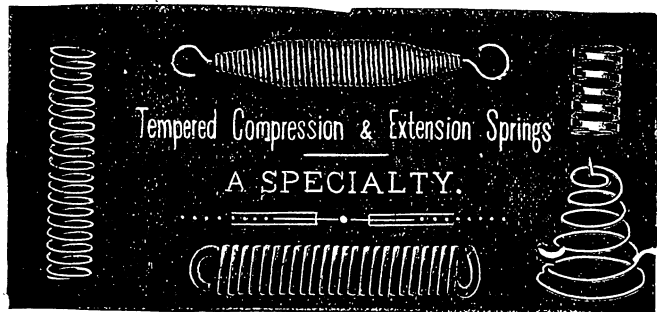
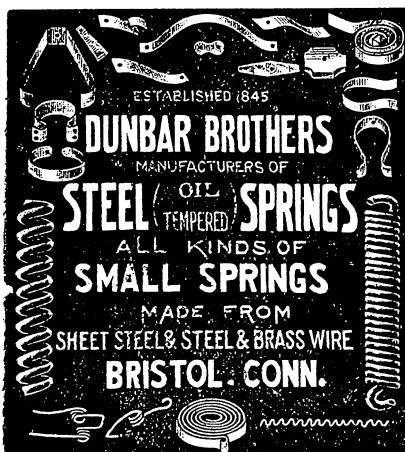
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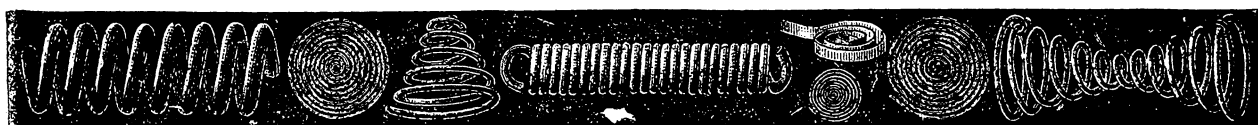
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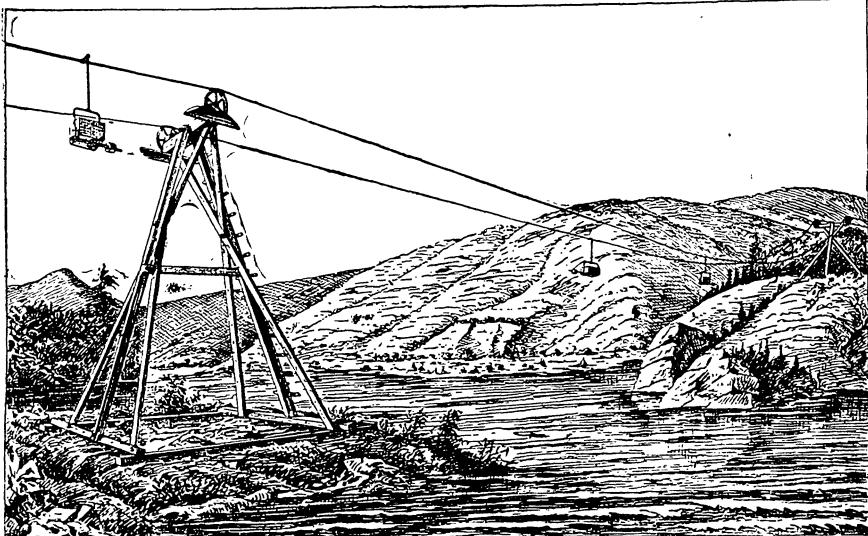
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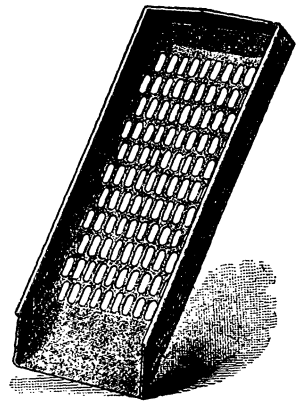
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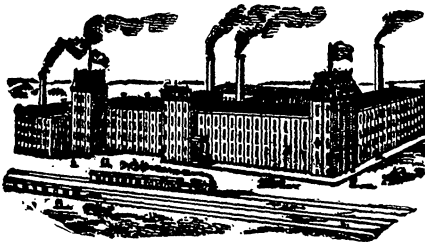
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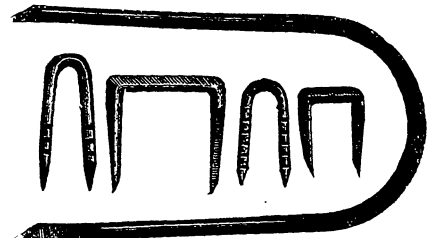


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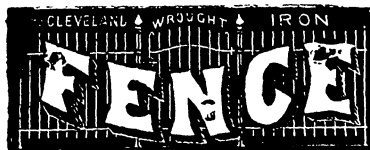
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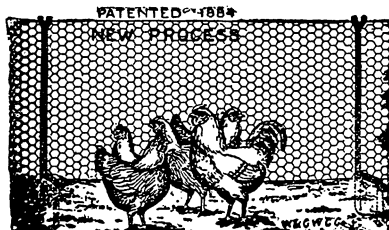
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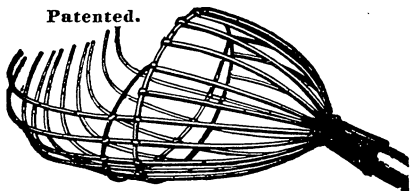
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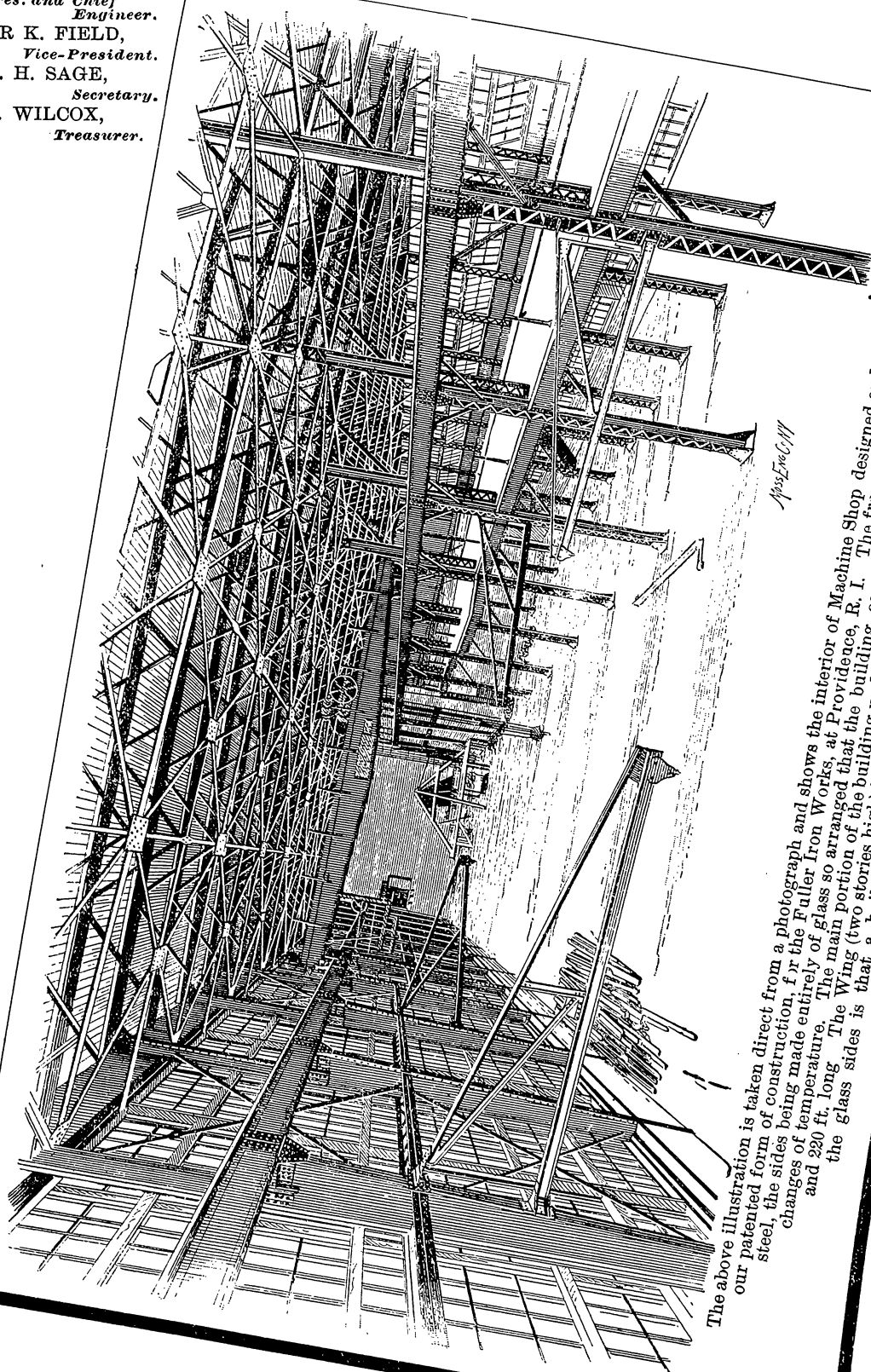
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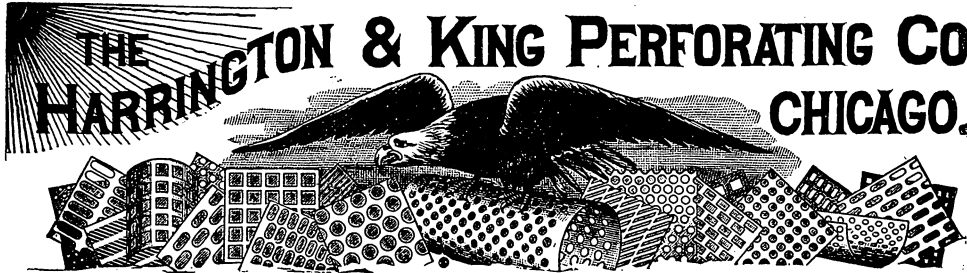
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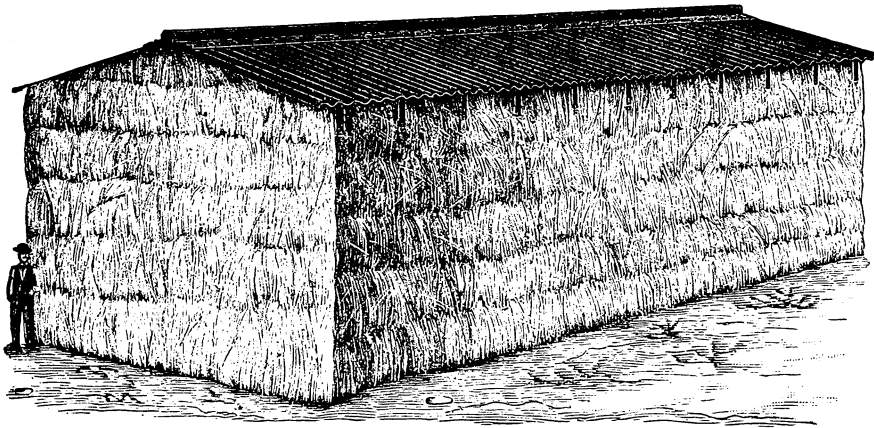
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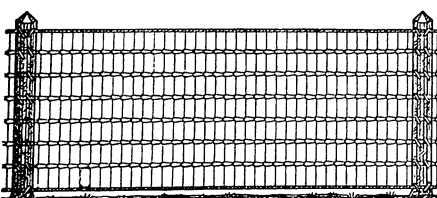
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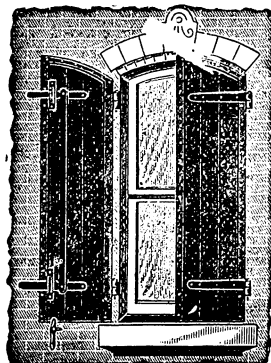
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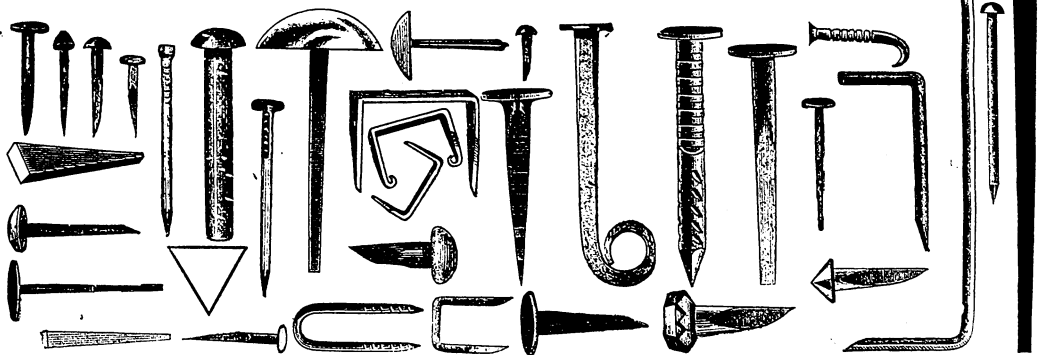
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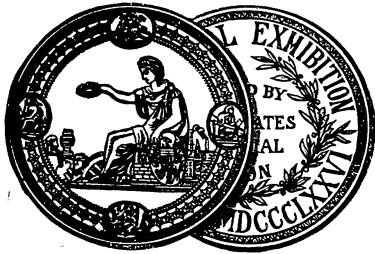
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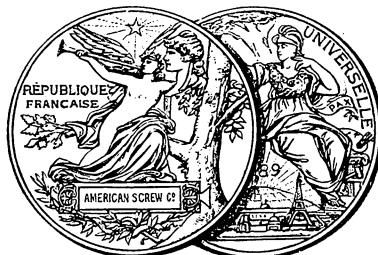
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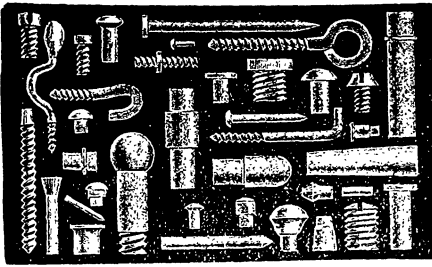
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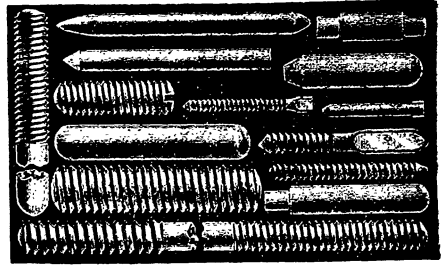
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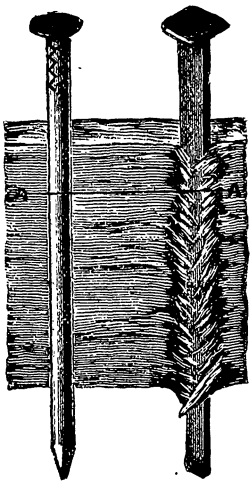
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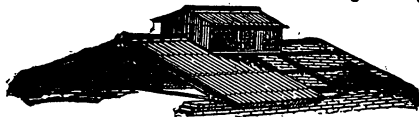
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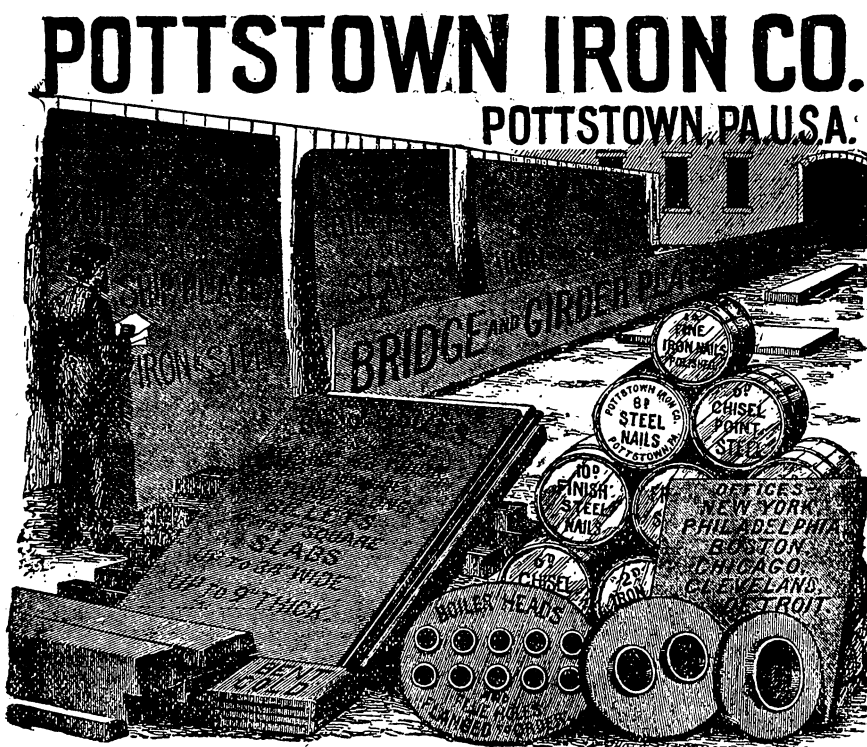
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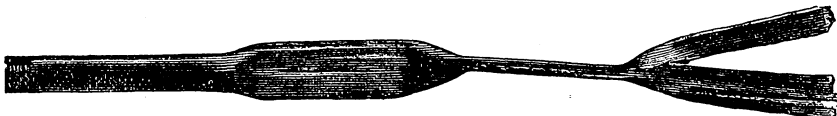
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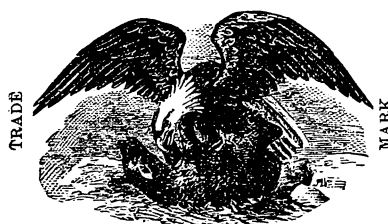
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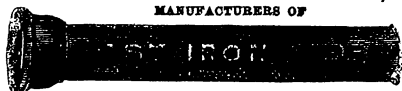
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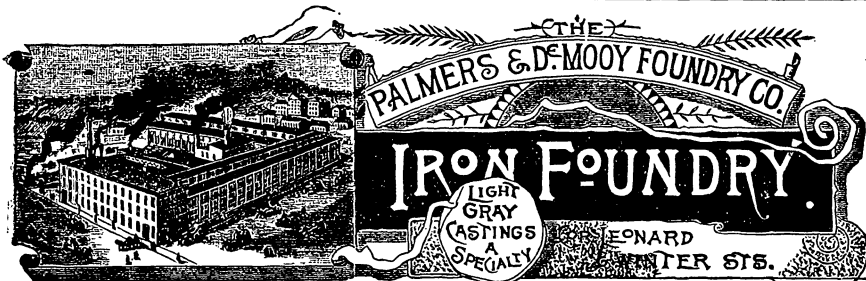
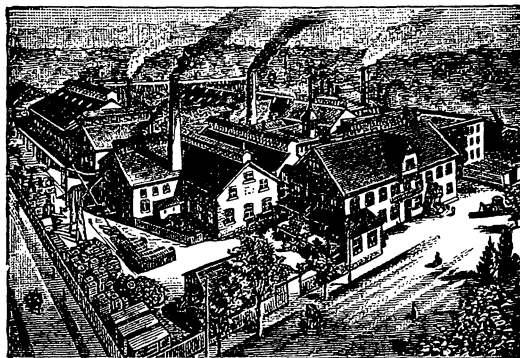




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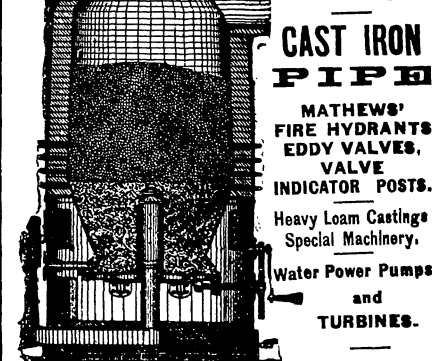
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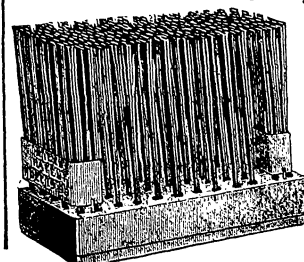
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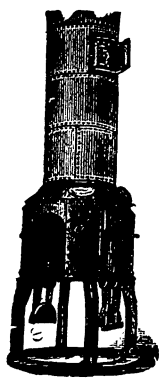
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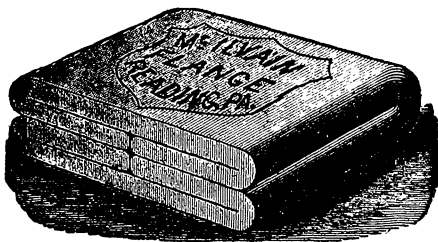
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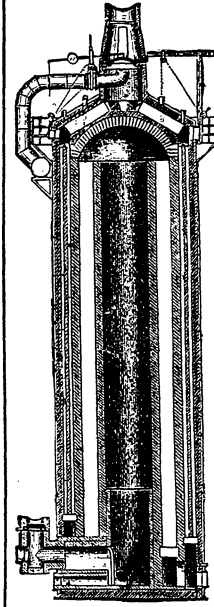
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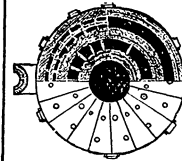
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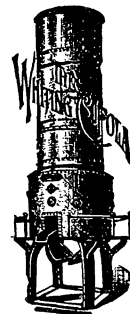


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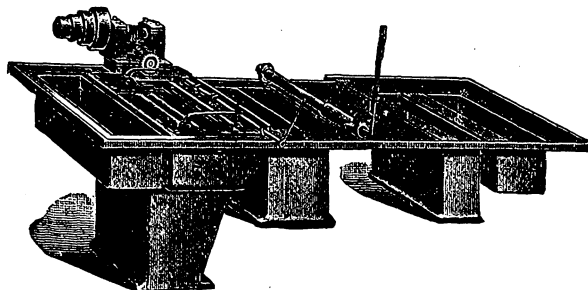
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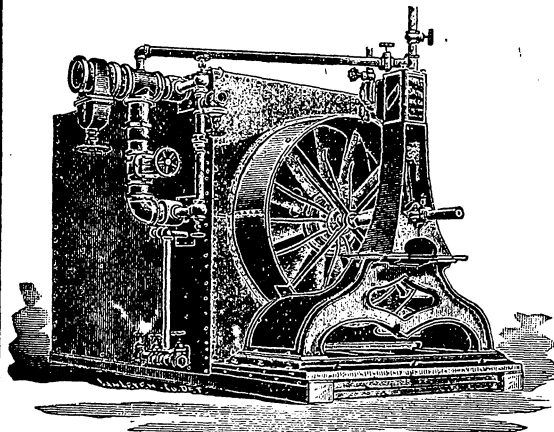


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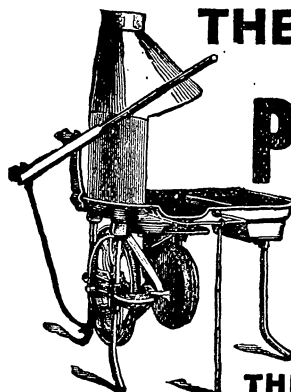
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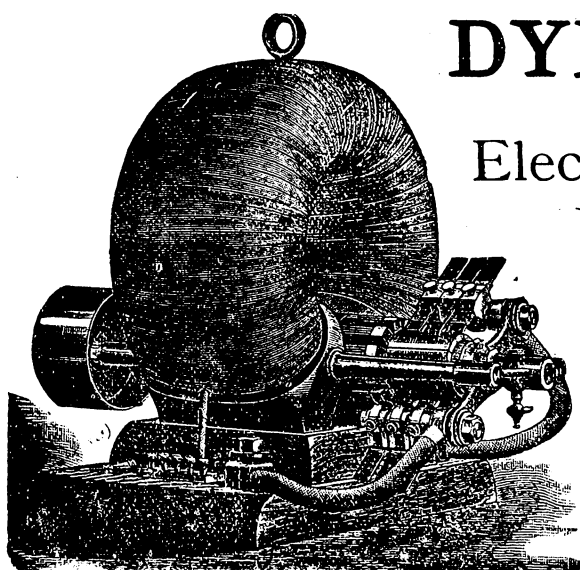
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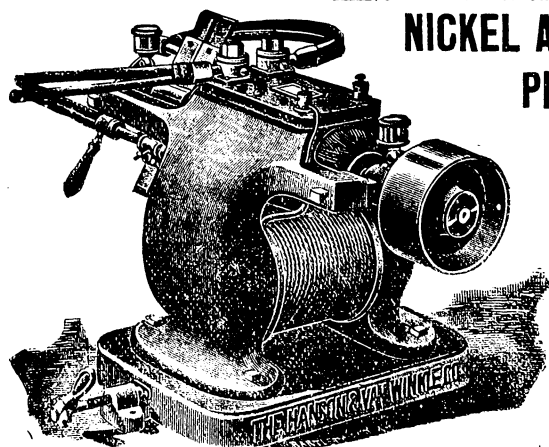
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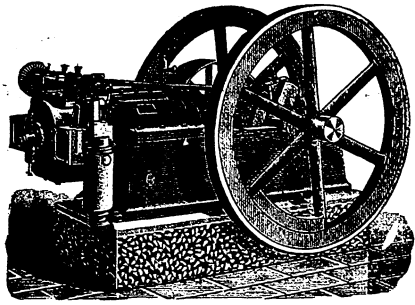
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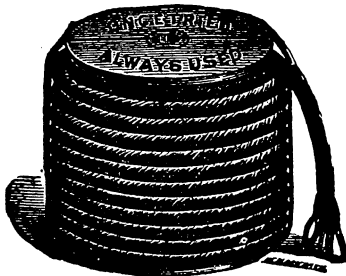
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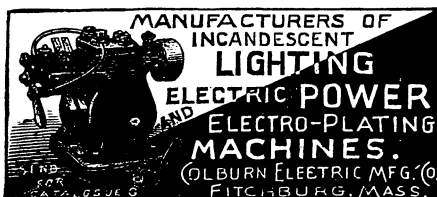
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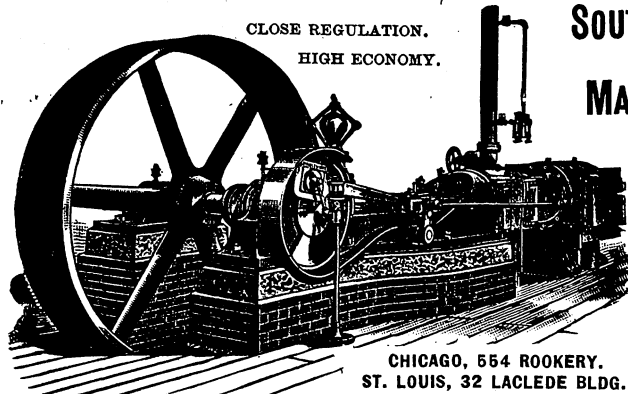
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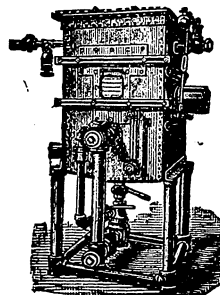
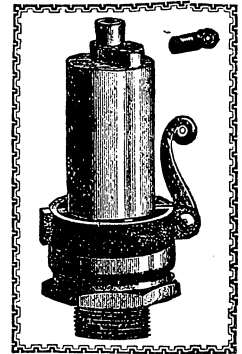
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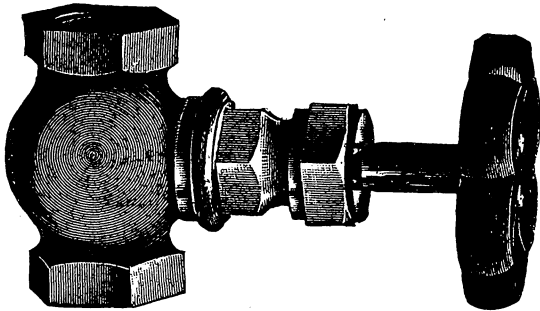


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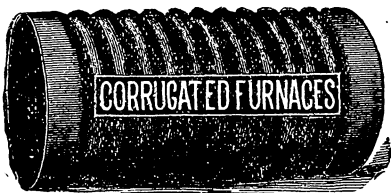
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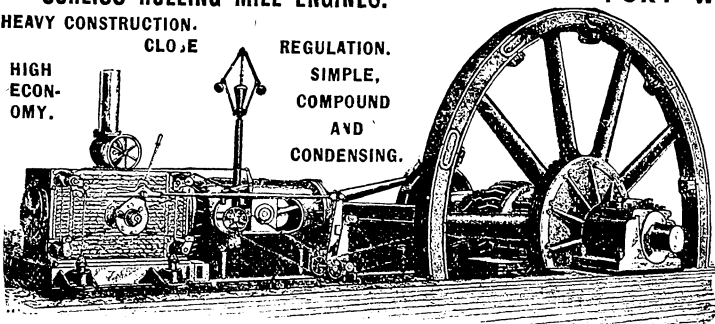
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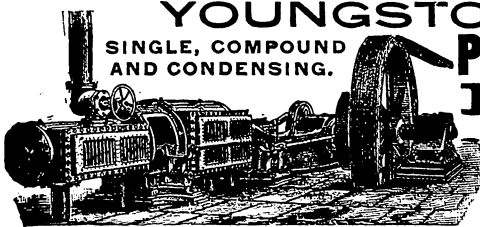


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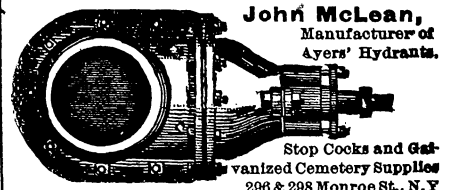
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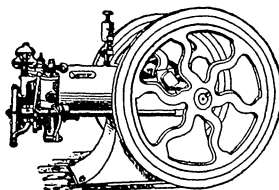


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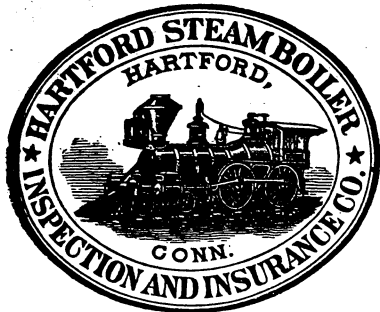
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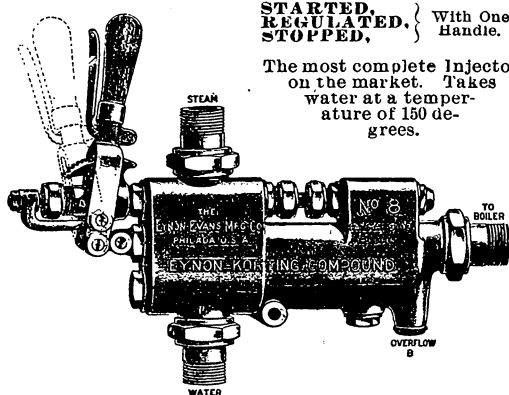
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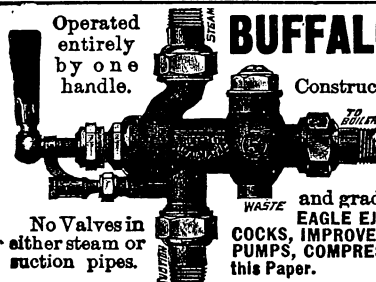
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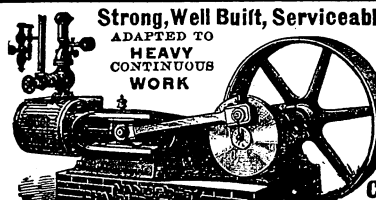
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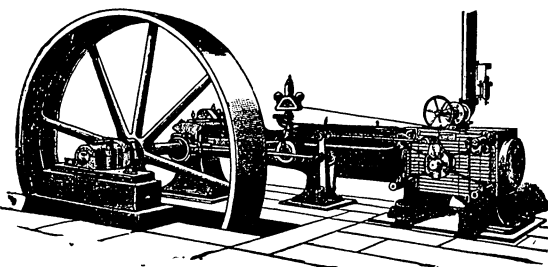
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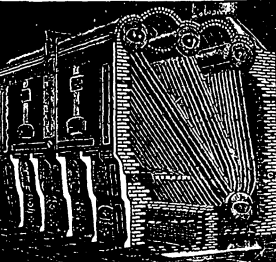
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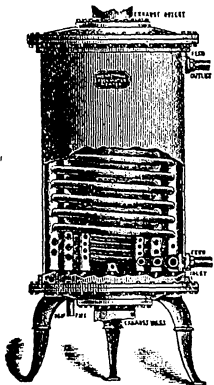
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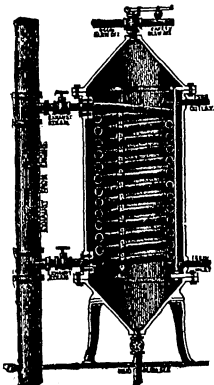


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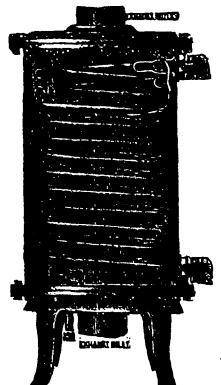
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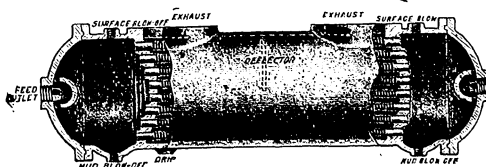
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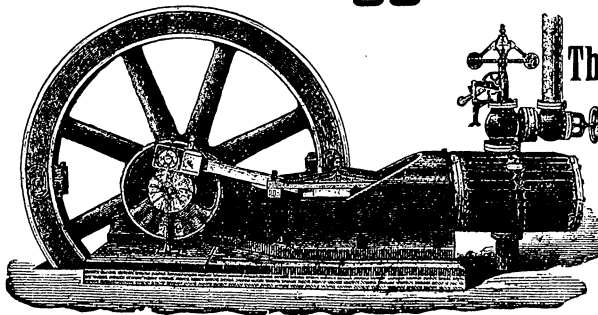
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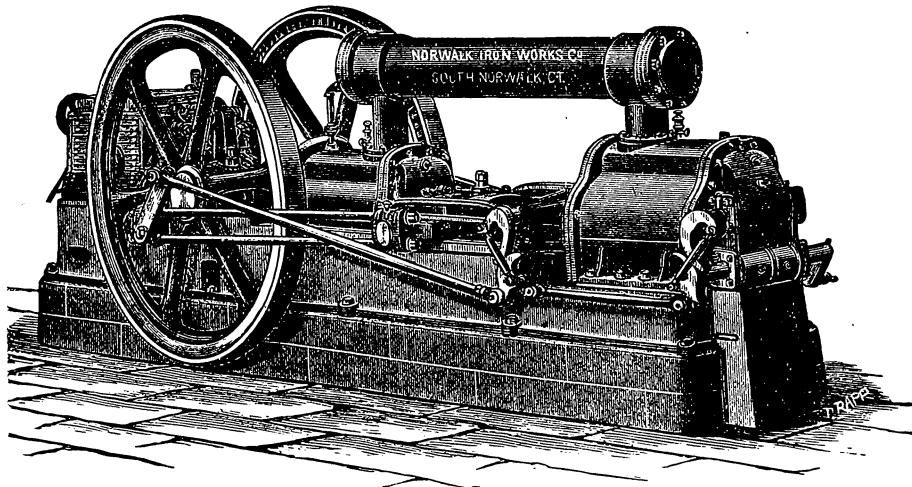
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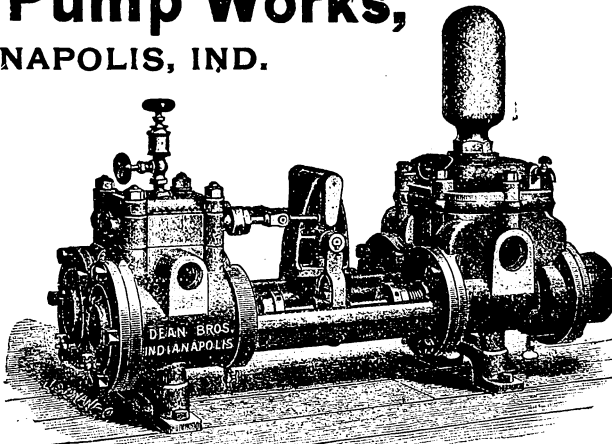
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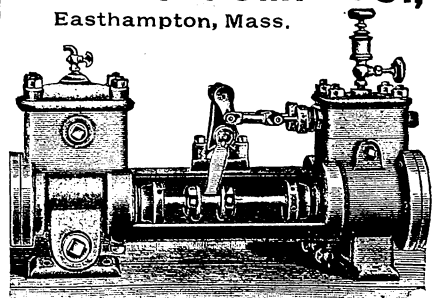


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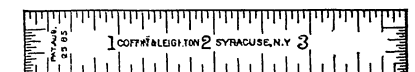


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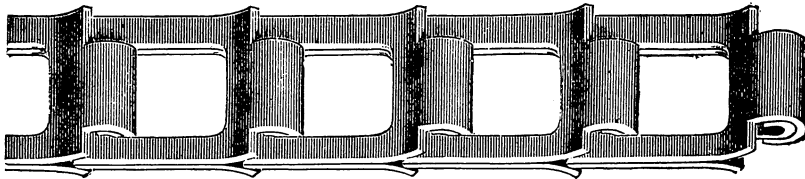
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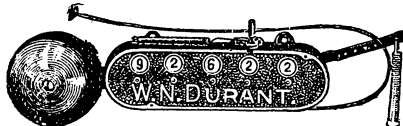
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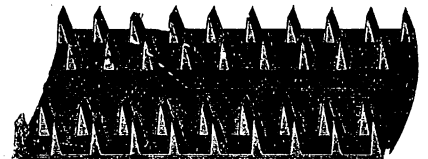
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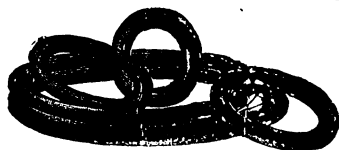
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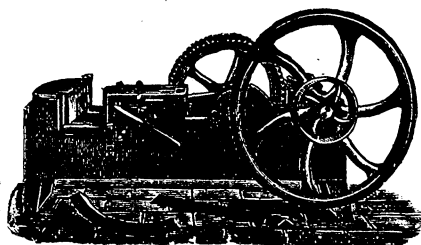
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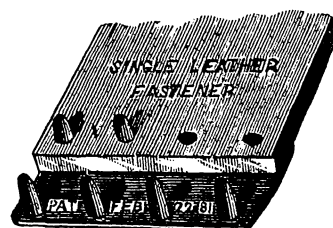
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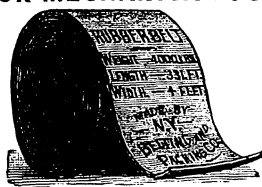
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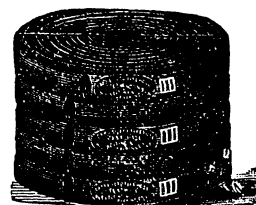
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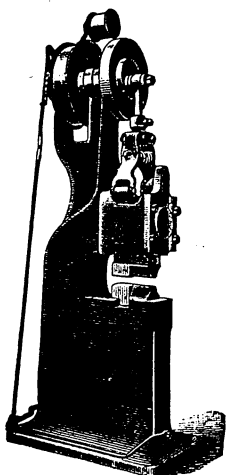
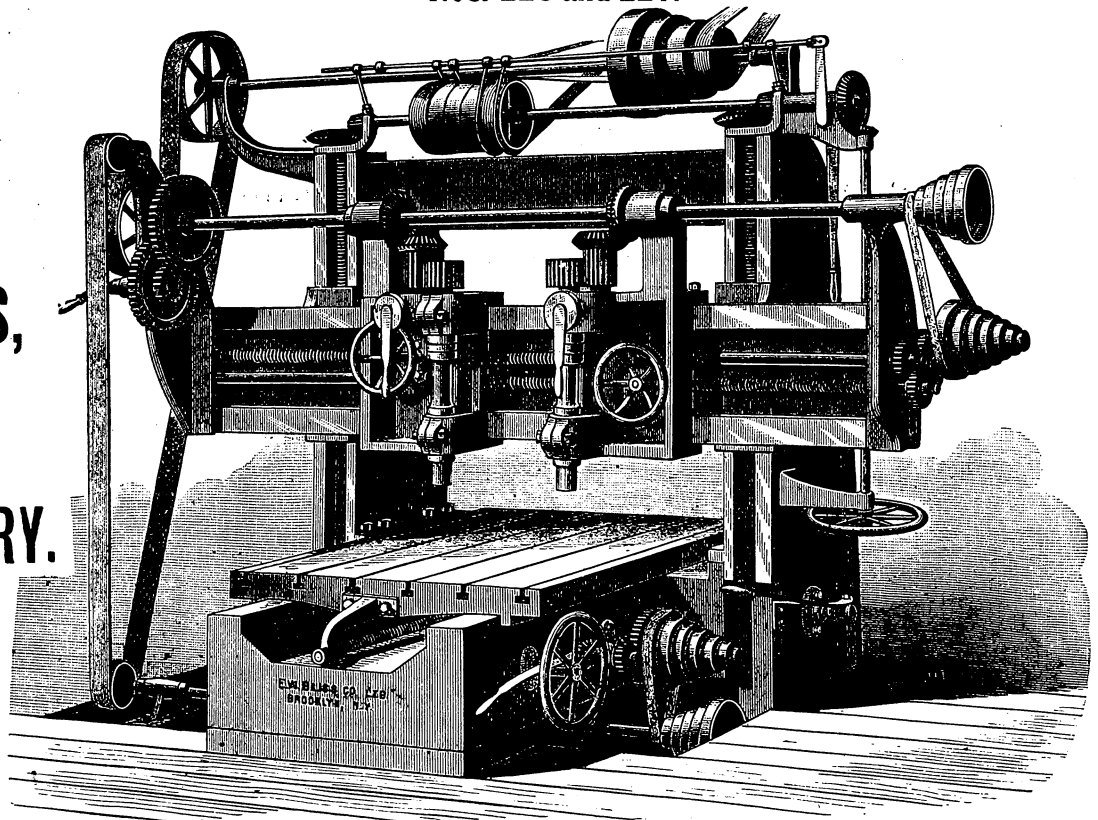
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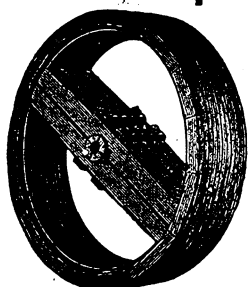
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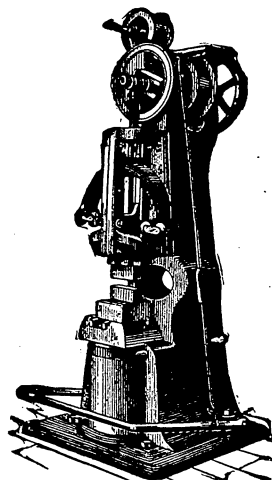
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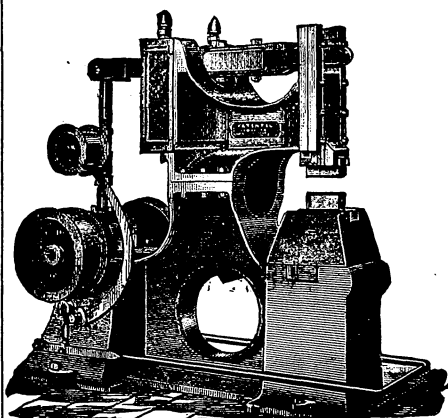
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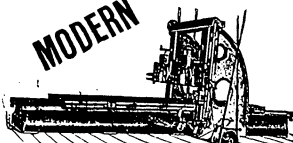
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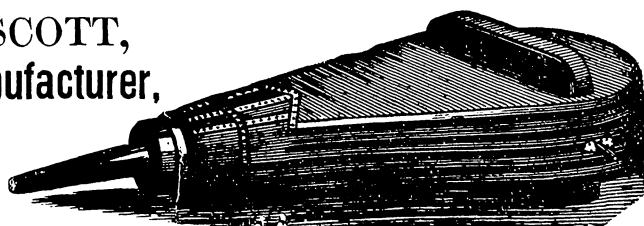
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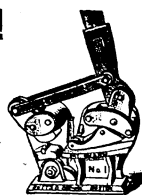
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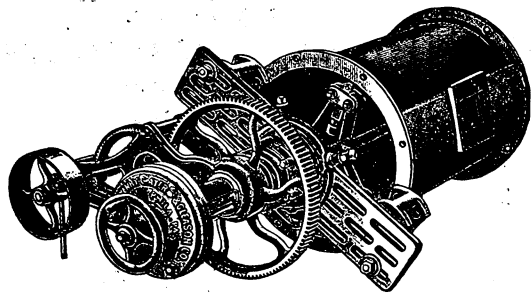
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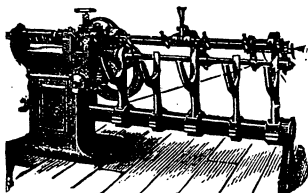
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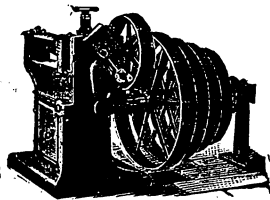
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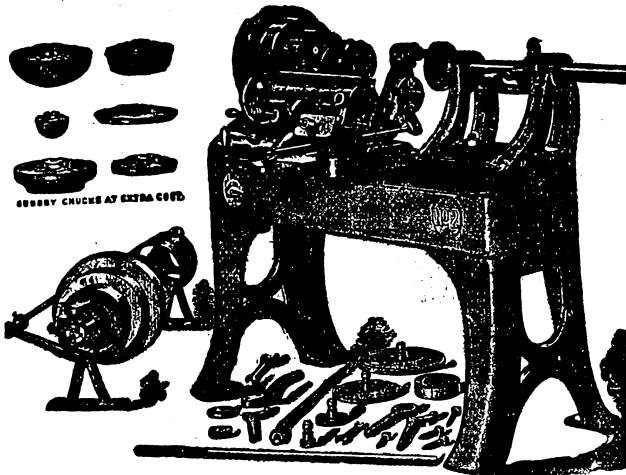
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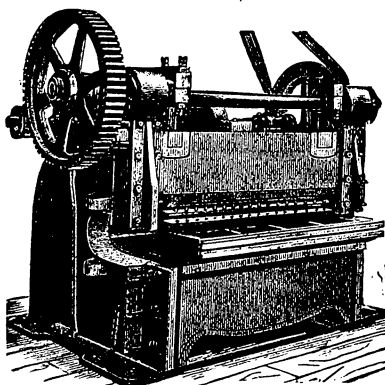
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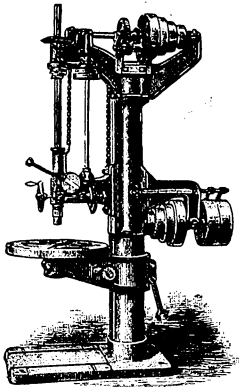
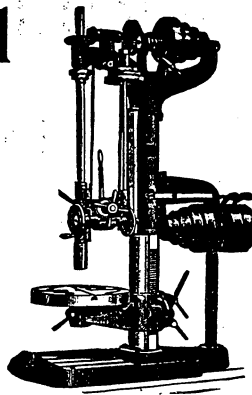
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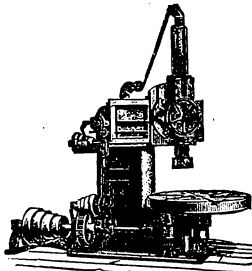
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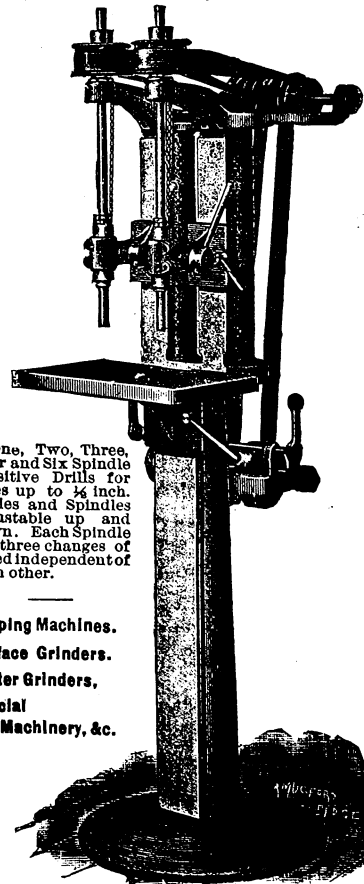
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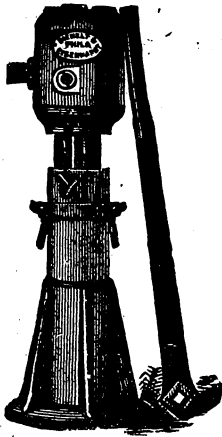
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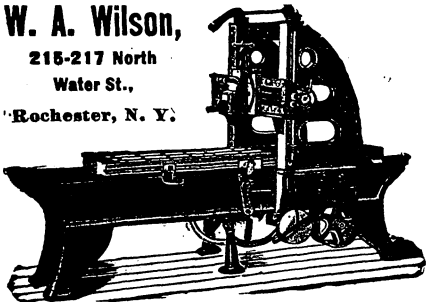
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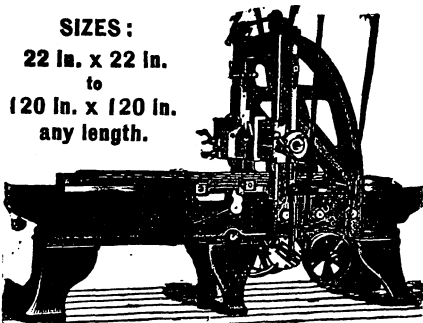
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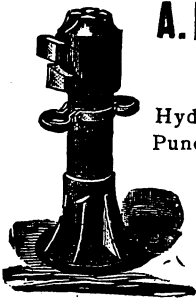


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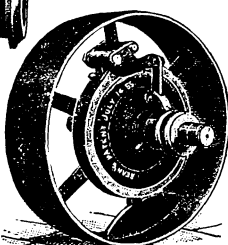
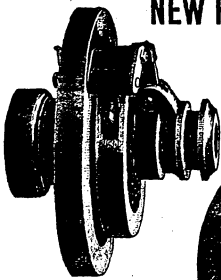
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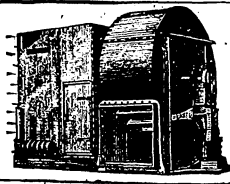
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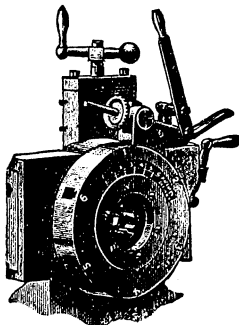
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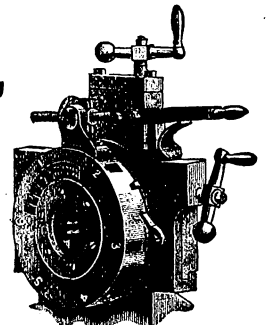
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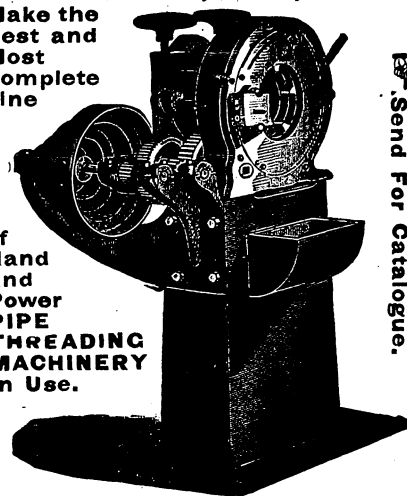


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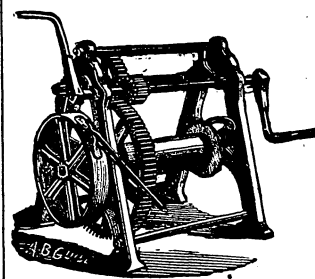
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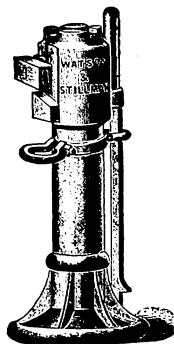
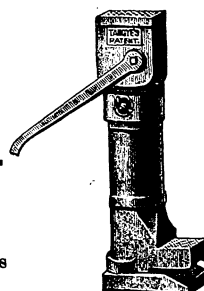


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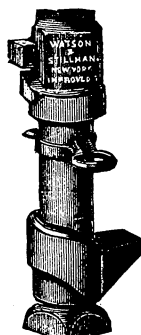
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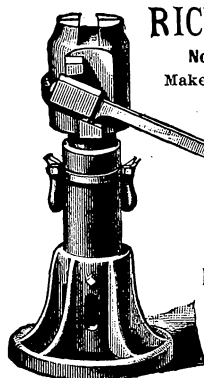
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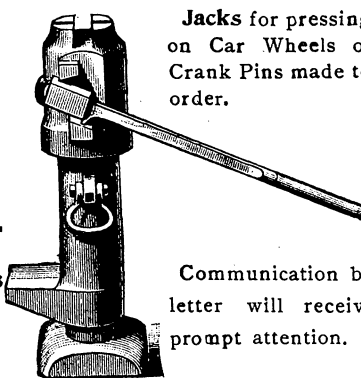
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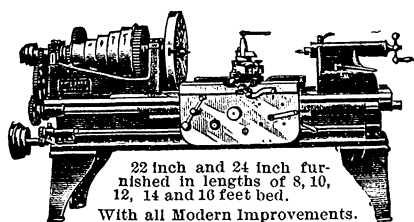
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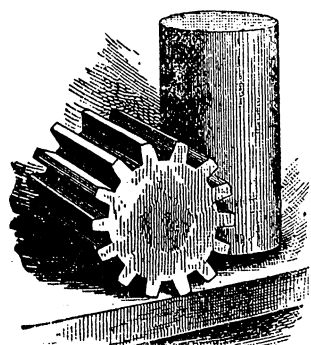
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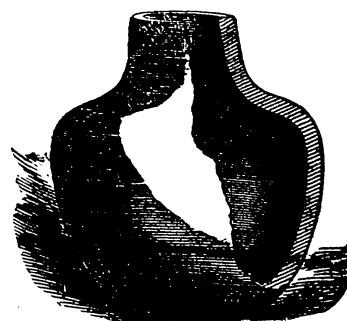
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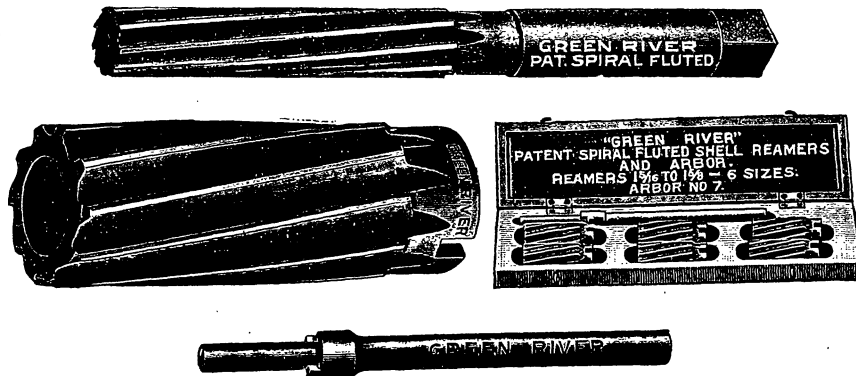
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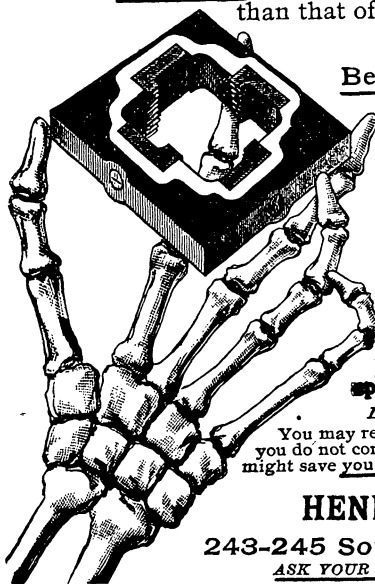
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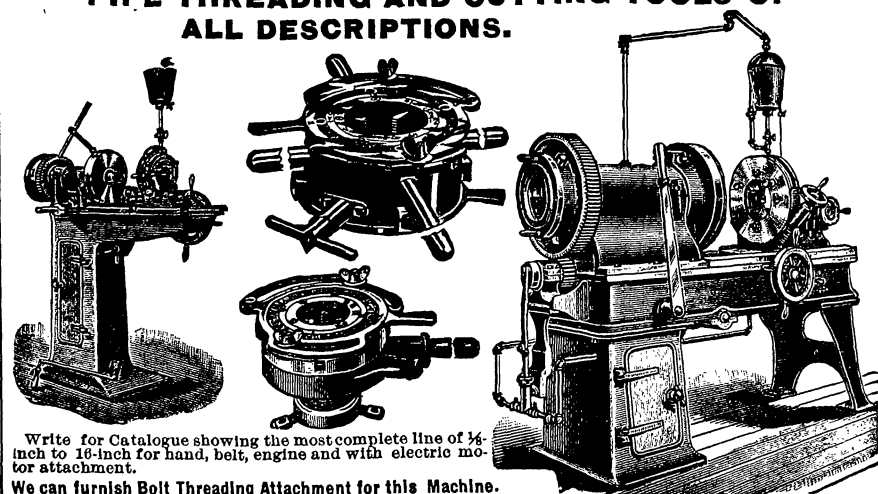
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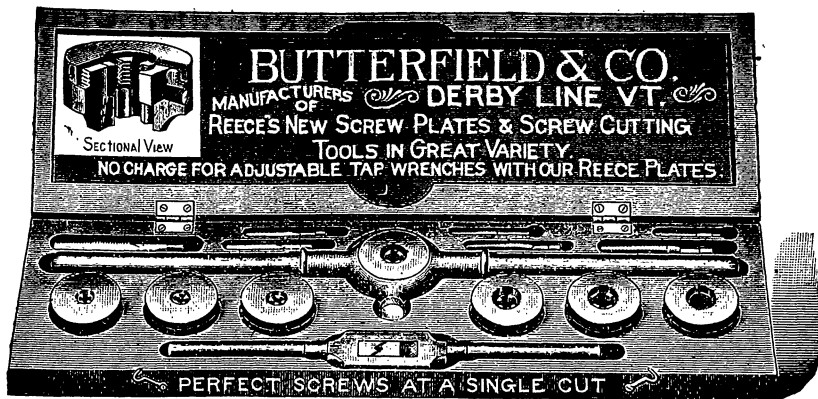
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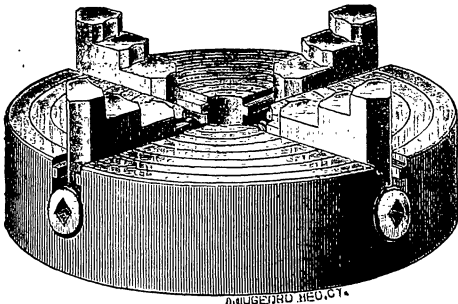
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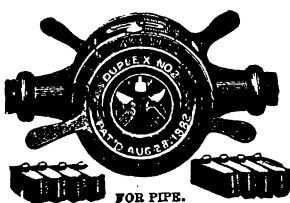
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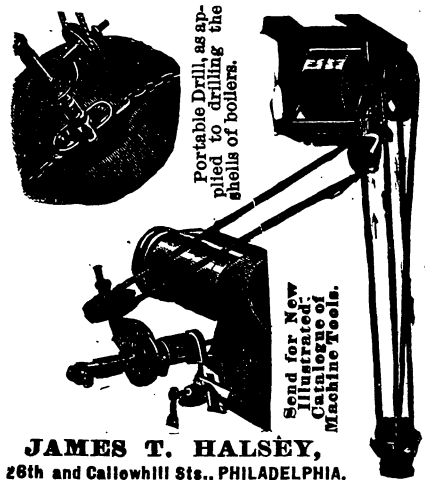
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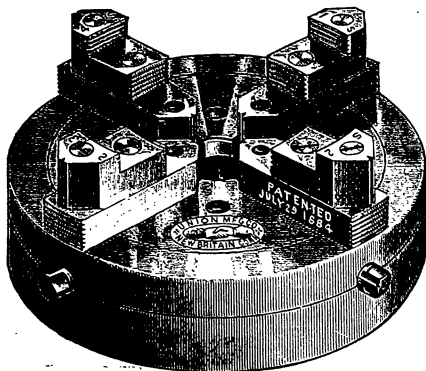
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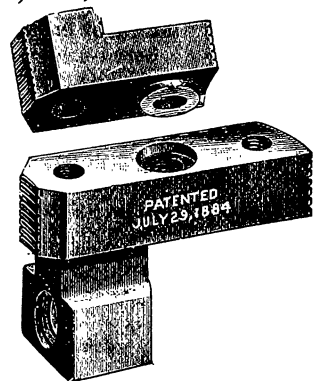
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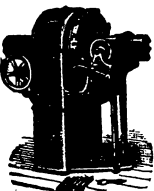
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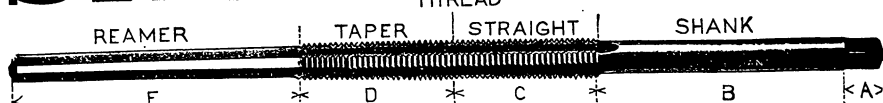
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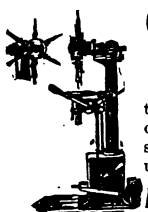
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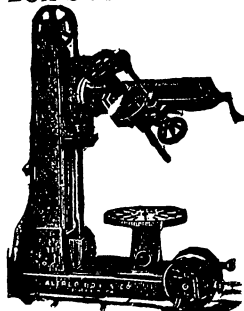
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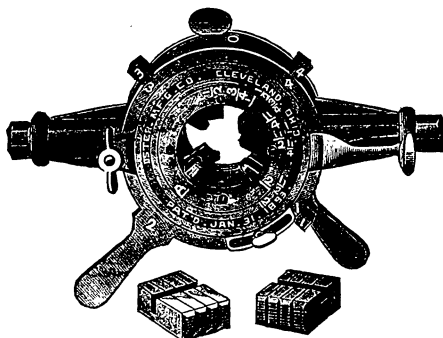
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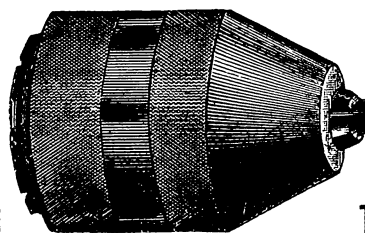
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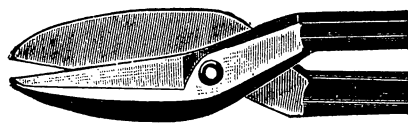
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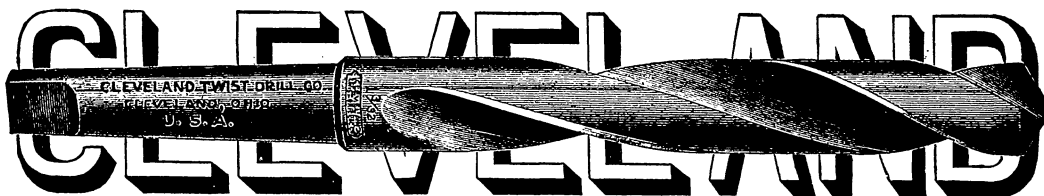
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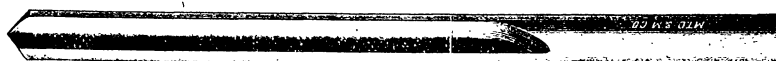
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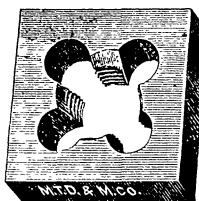
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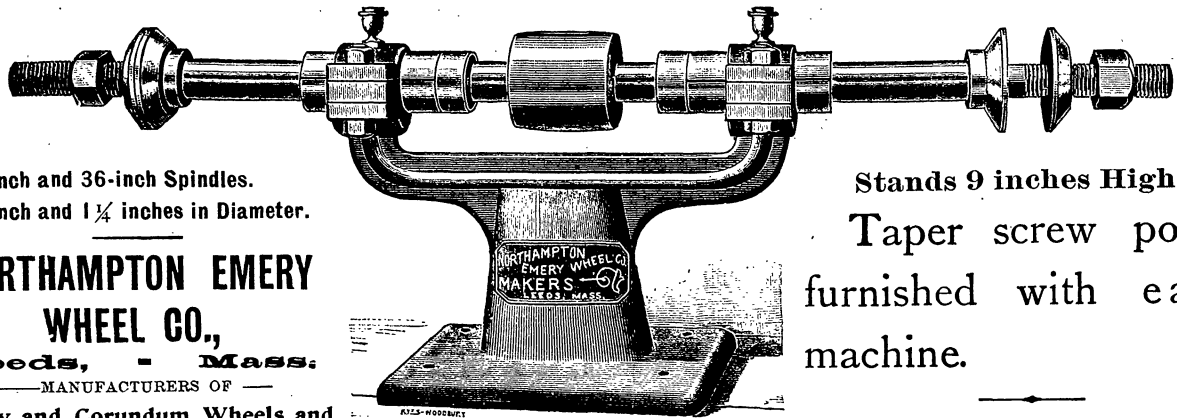
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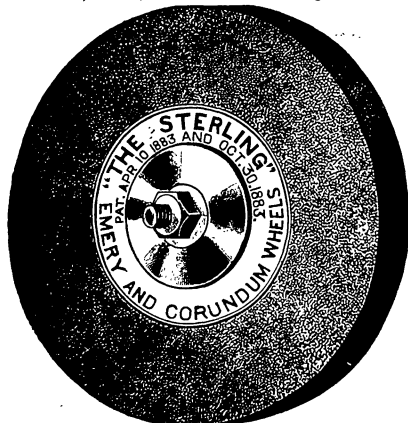
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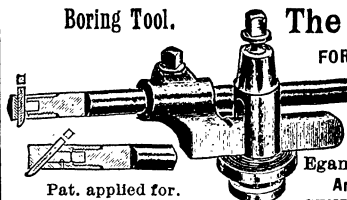
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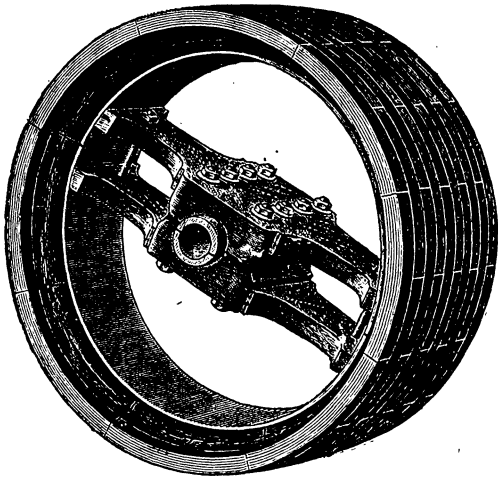
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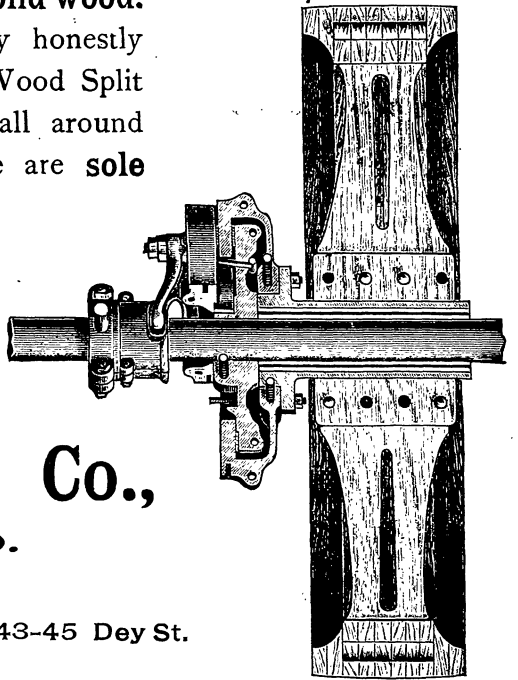
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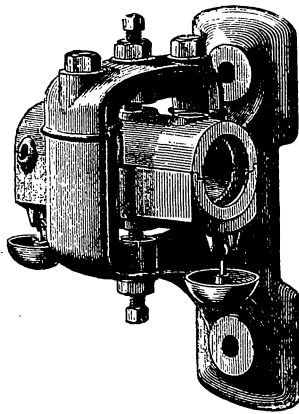
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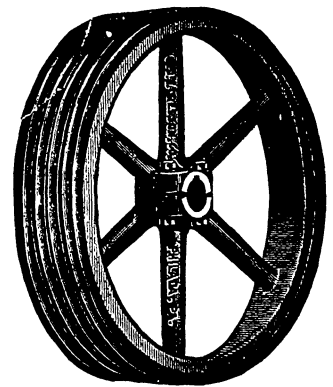
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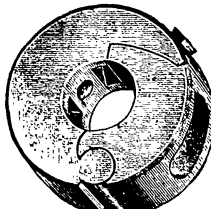
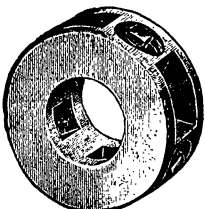
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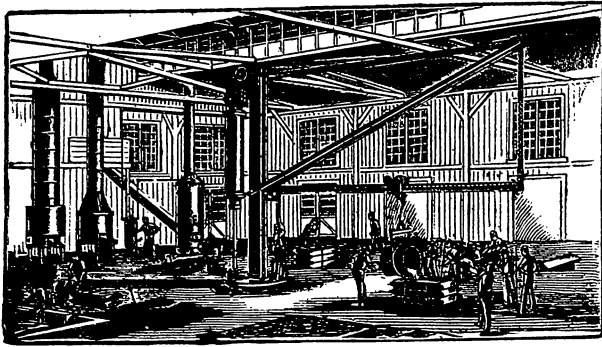
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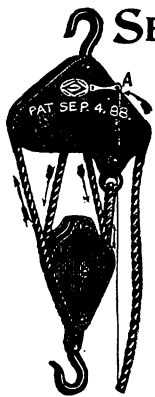
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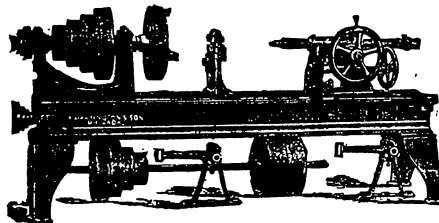
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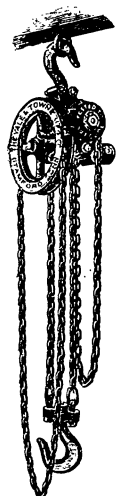
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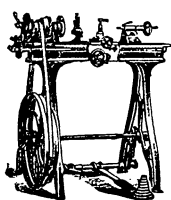
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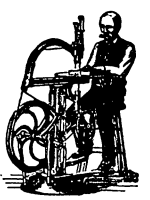
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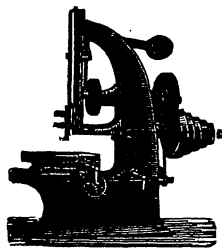
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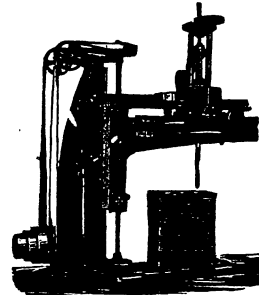
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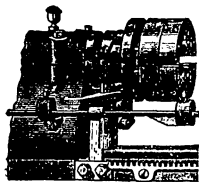
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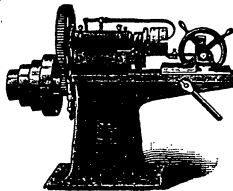
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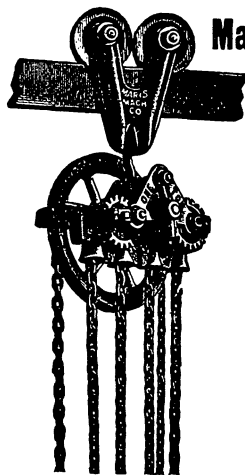
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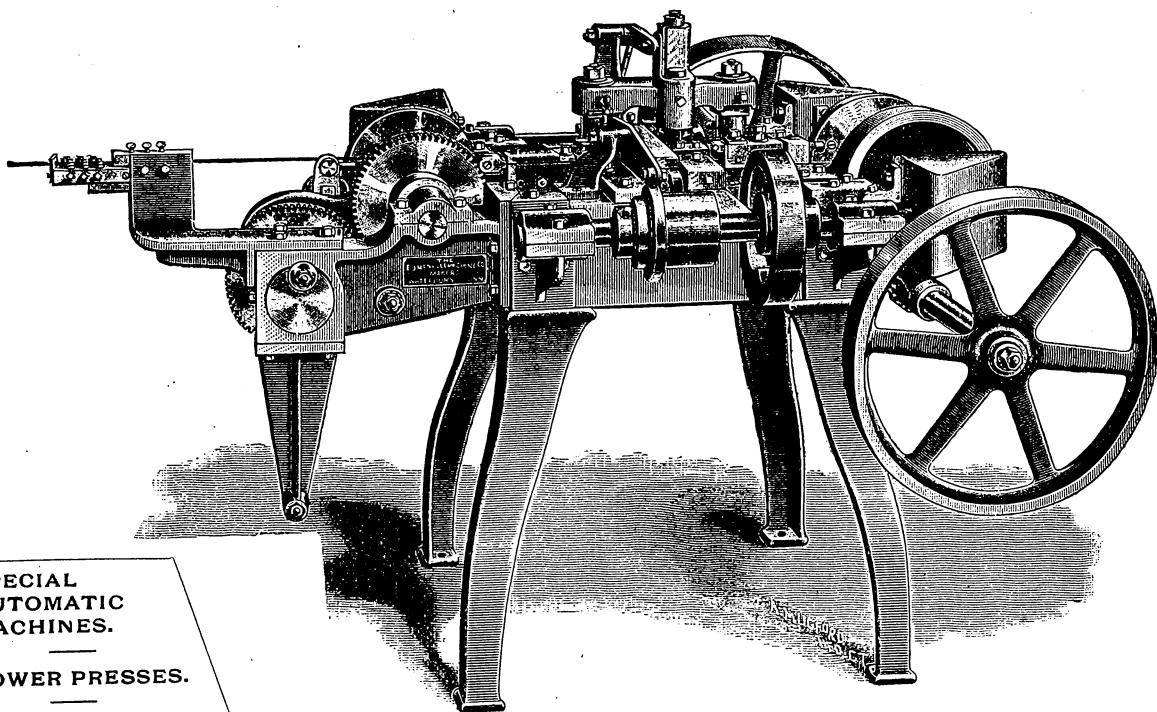
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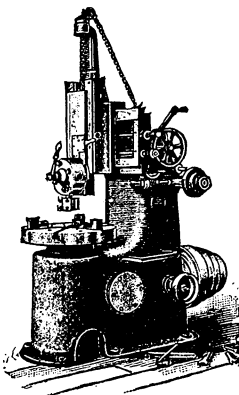
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"Expert" has been defined—by some incendiary: "One who is prepared to prove anything for a satisfactory consideration." Co-incidentally it is a significant fact that the SELF-CONFESSED "ADVERTISING EXPERT" has recently become extinct, and gives promise of remaining so. The quondam "Expert," with a unanimity worthy of note, now limits his claims to simple OMNISCIENCE, or to a fictitious blending of OMNISCIENCE with OMNIPOTENCE. So much for the abstract. For obvious reasons I am not an "Expert," while a very mild type of OMNISCIENCE will instantly recognize the absurdity of any claims I might advance to such an attribute. Treating of Advertising matters, I have issued two publications—rather more perhaps than circulars, considerably less than books, neither of them works of genius, both of them obviously and avowedly FINITE. Number 2—treats of the Trade Circular; Number 9—of some phases of Newspaper and Periodical Advertising. Both will be mailed to those whose longing for light would seem to warrant the sending of five 2-cent Postage Stamps to the subscriber.

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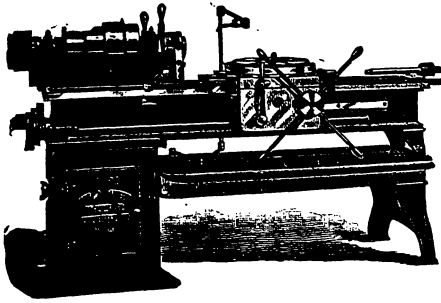
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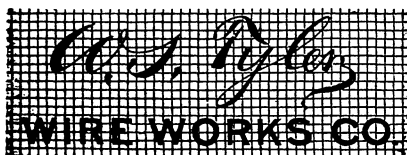
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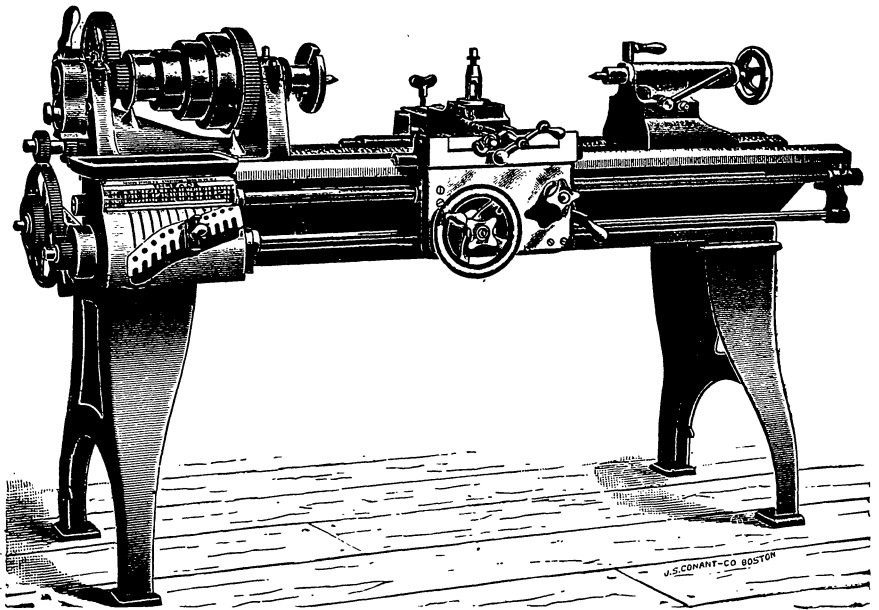
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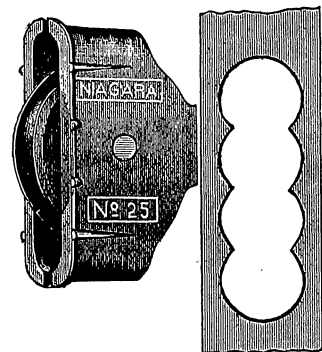


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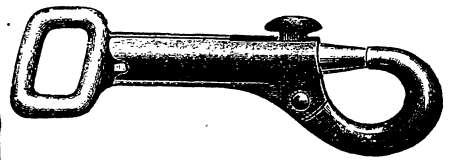
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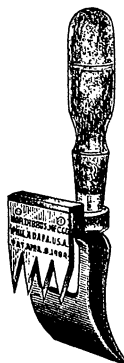
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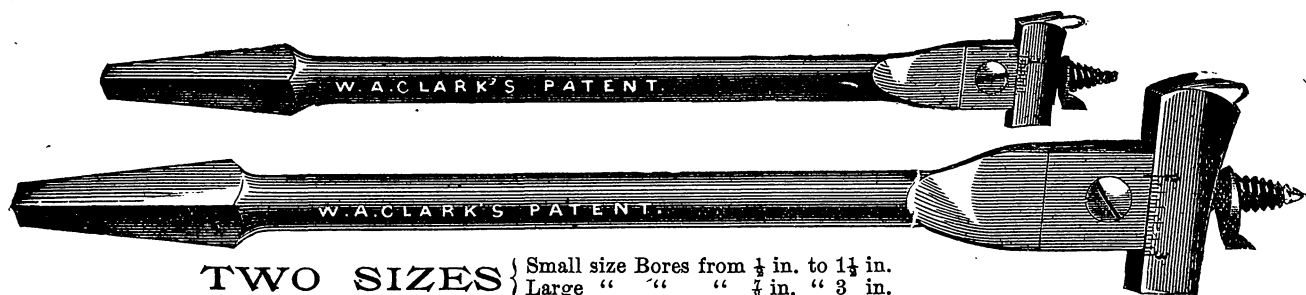
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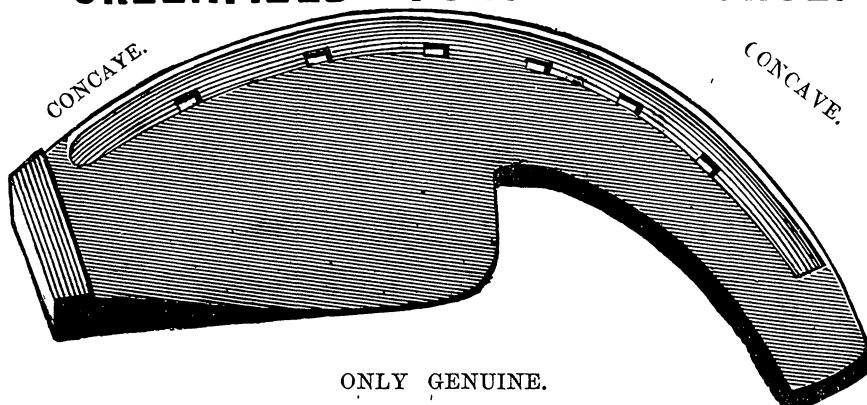


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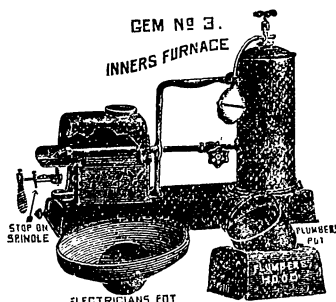
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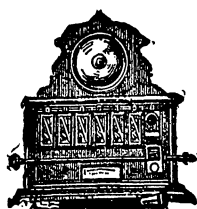
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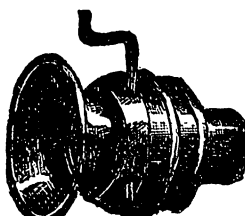
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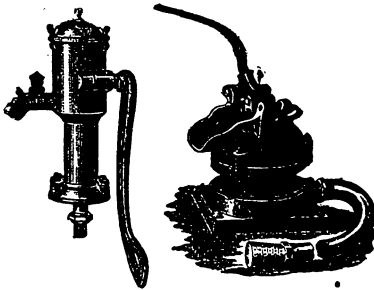
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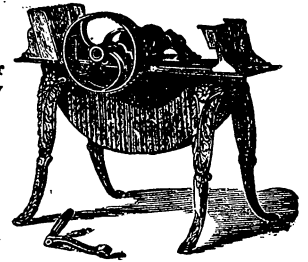
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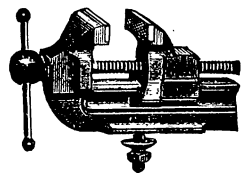
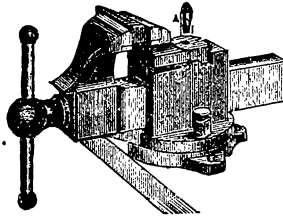
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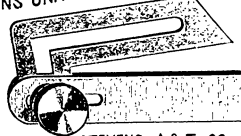
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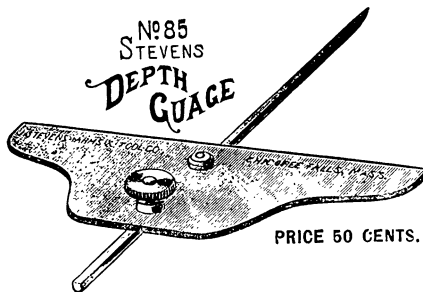
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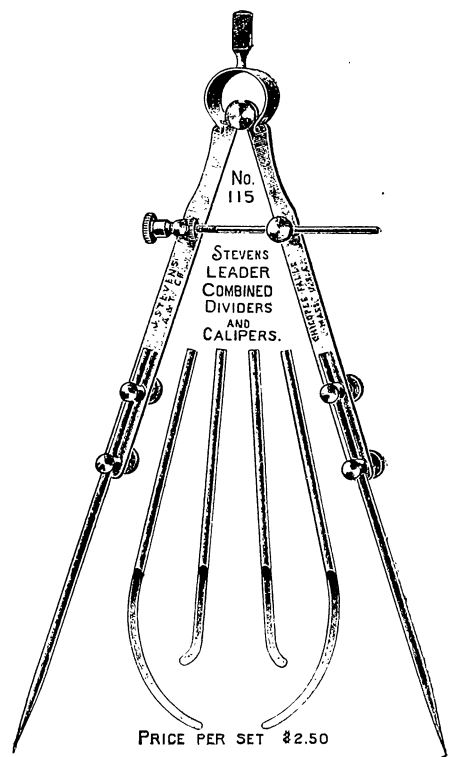
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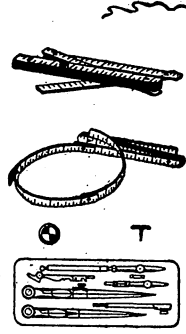
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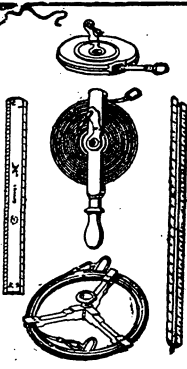
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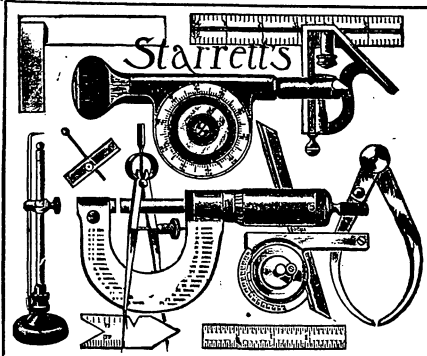
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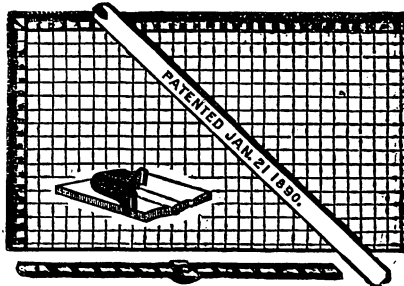
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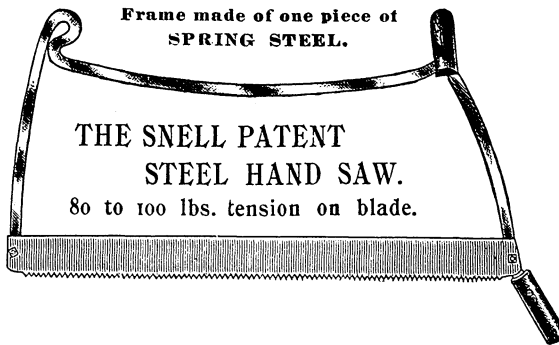
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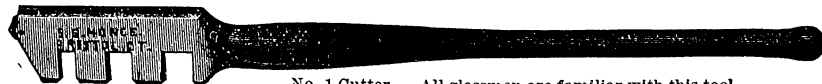
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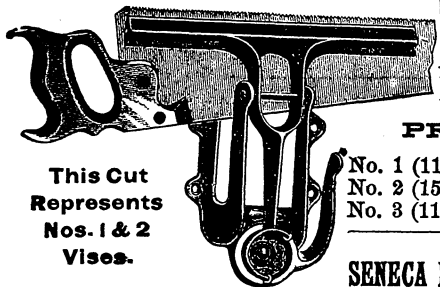
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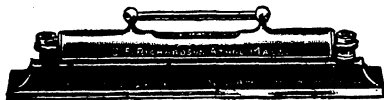


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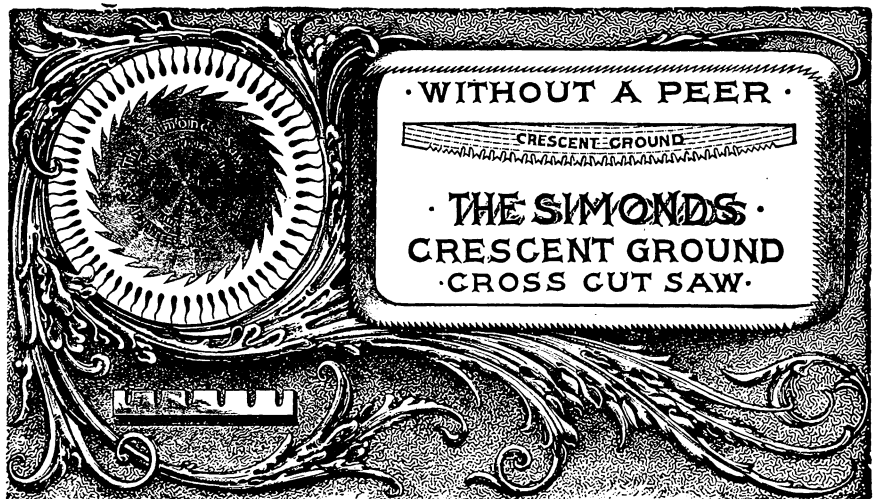
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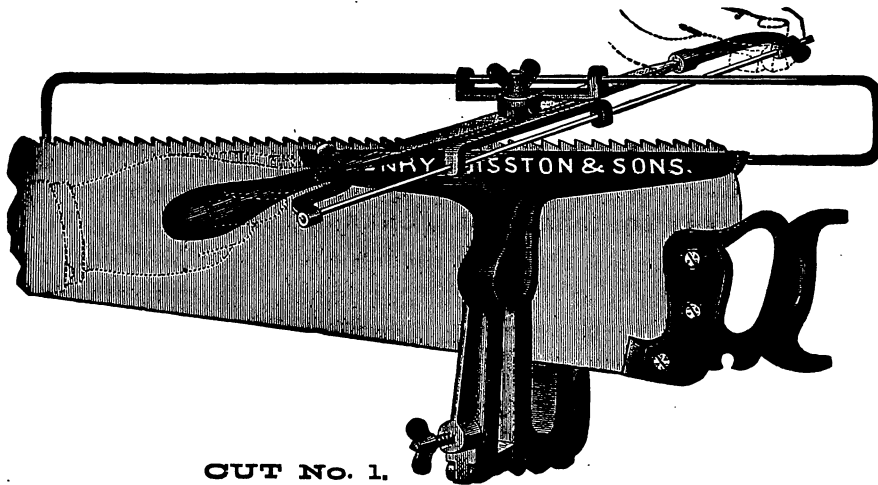
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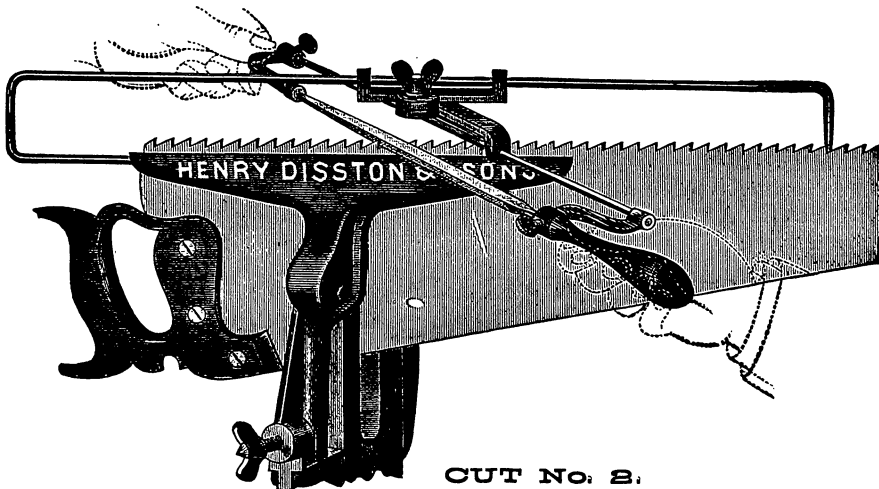
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ESPECIALLY DESIGNED TO ASSIST THOSE NOT SKILLED IN THE ART  
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Cut No. 1 shows a saw and the attachment in proper position for filing the first side; and Cut No. 2 shows the saw and attachment reversed and in position to file the second side. There are three marks on one of the hubs of the swivel attachment, and one mark on the other. One of the three marks shows when it is in position No. 1, and the other designates when it is in position as shown in No. 2. The third, or centre, marks show when it is in position for filing Rip Saws.



CUT No. 2.

To obtain the correct position, loosen the wing nut and move the guide around to the point desired; after tightening wing nut, loosen screw in file handle, then turn handle until file gives the shape tooth wanted.

A good way is to select a tooth of correct shape and let file down into it, tighten set screw in handle, then file a tooth to see if the shape suits. If not turn the file a little to the right or left and try another tooth until the proper shape is obtained. Then file every other tooth, see cut No. 1; when one side is filed, reverse saw and attachment and adjust as in No. 2, and file the other teeth. For Rip Saws, place the file at right angles with the saw and file every tooth. Always keep the file as nearly horizontal as possible.

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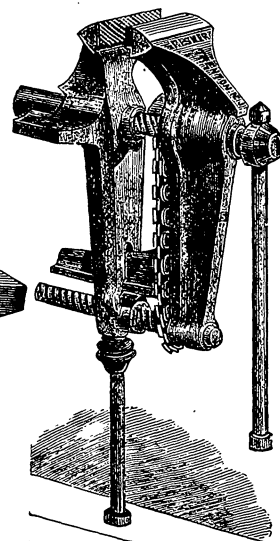
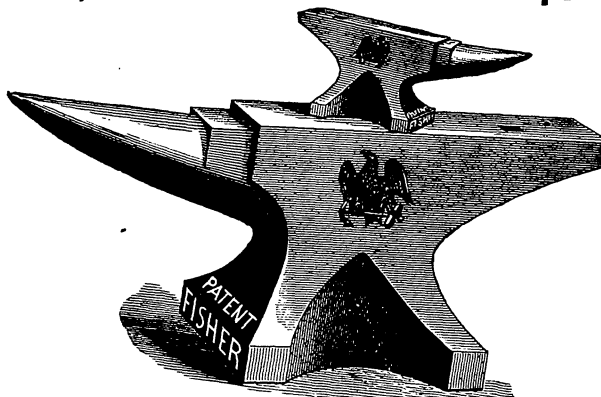
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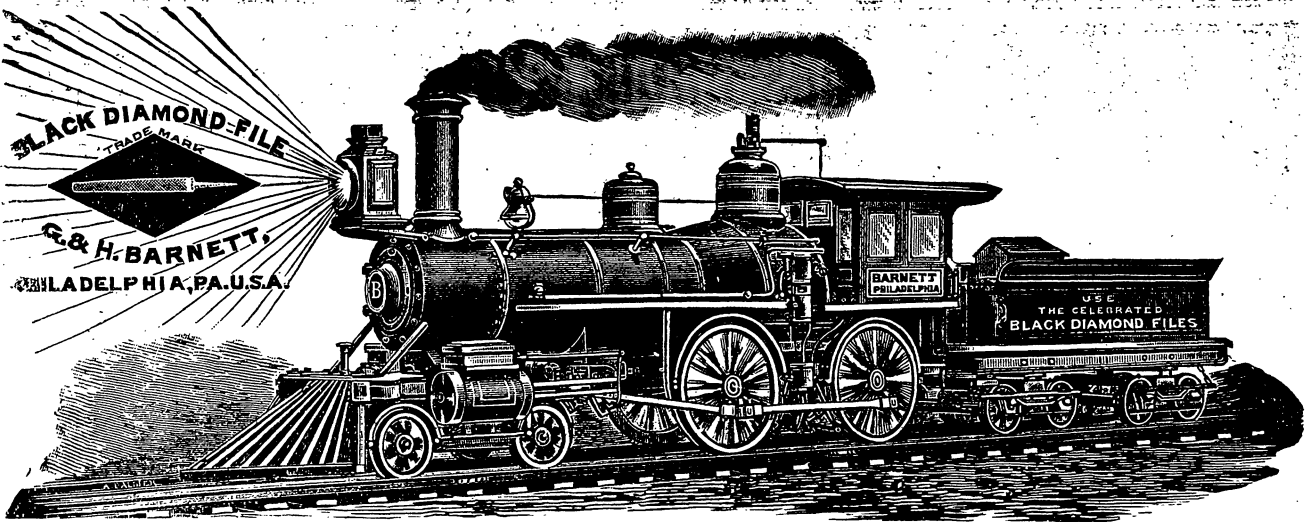
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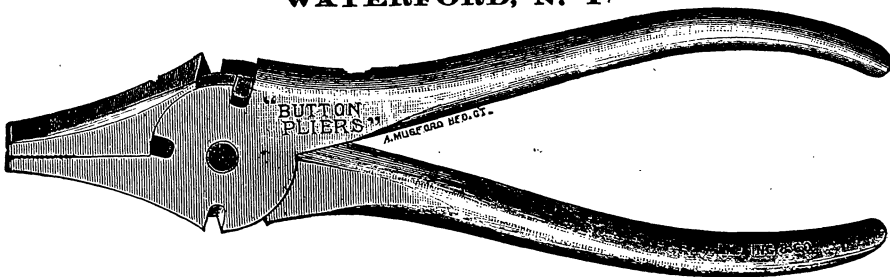
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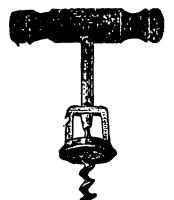
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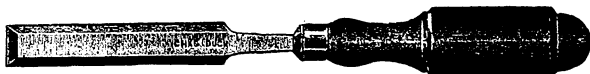
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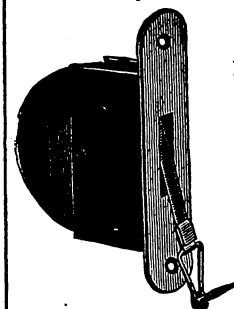
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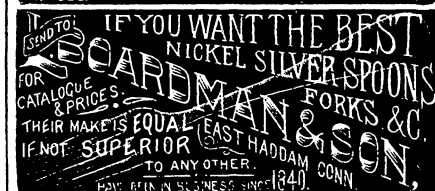
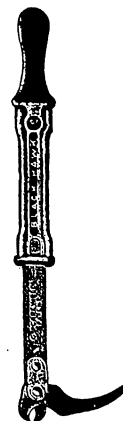


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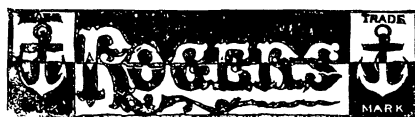
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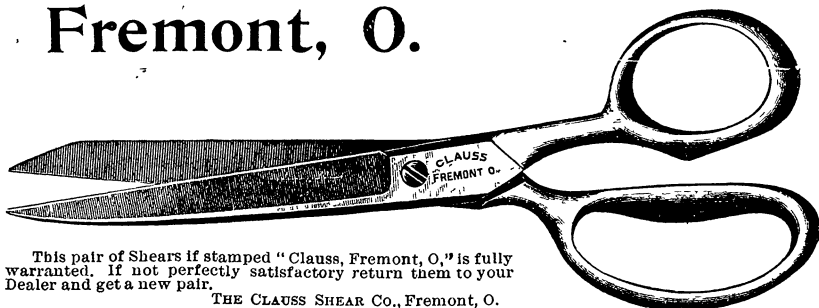
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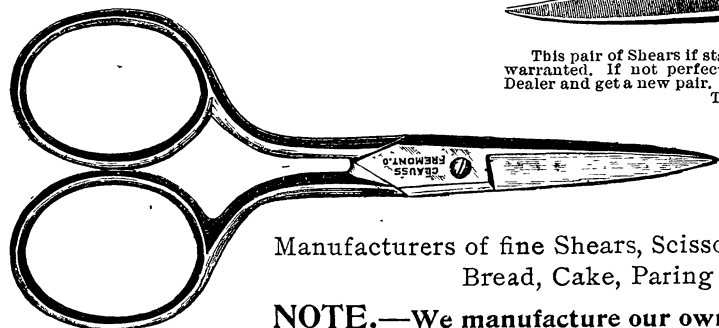
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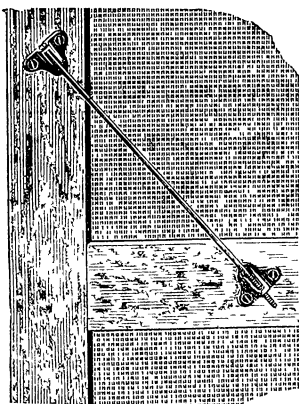
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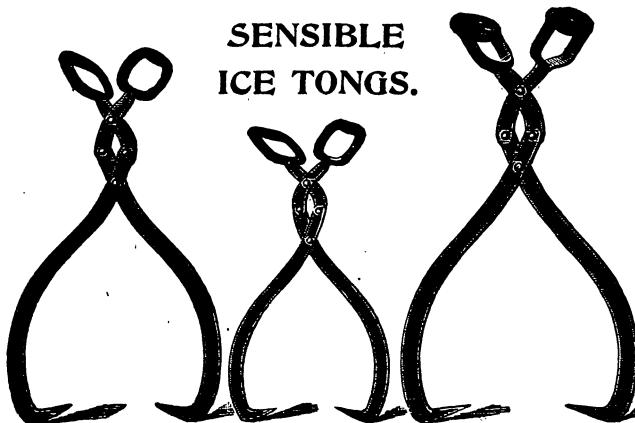
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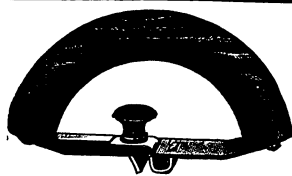
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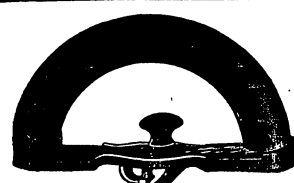


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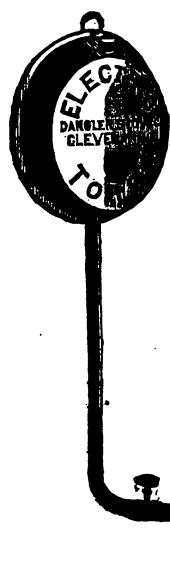
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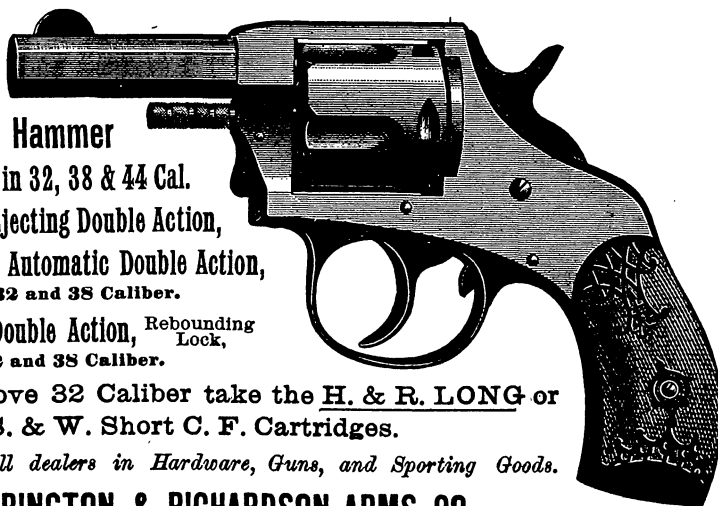
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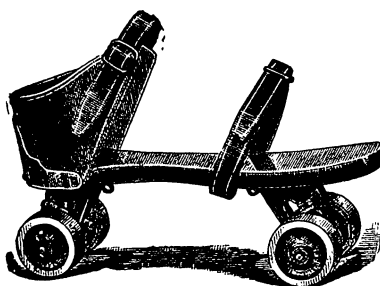


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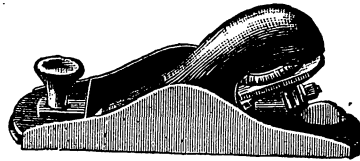
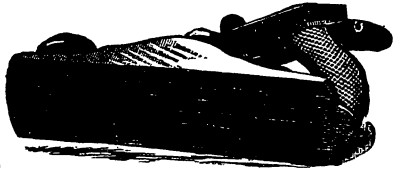
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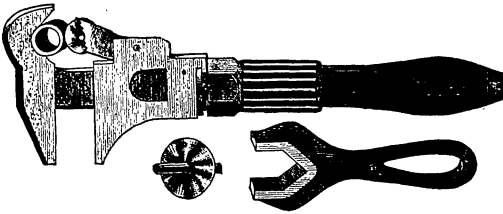


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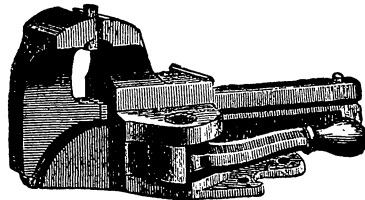


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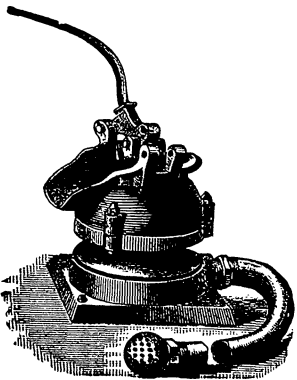
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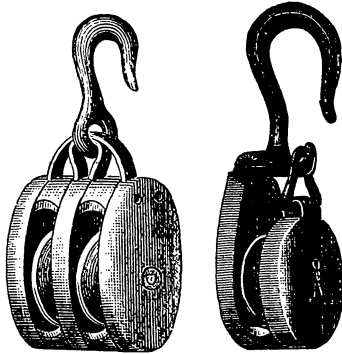
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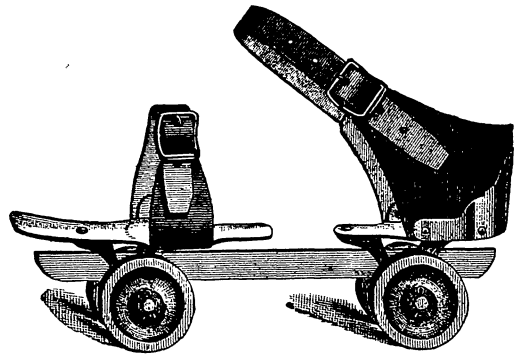
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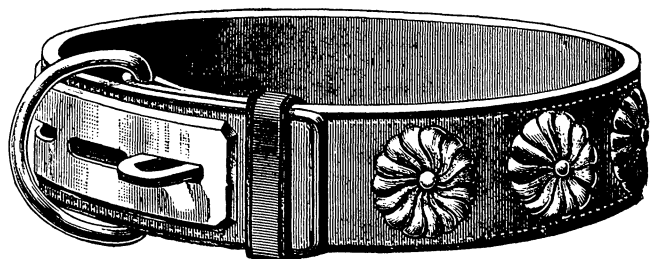
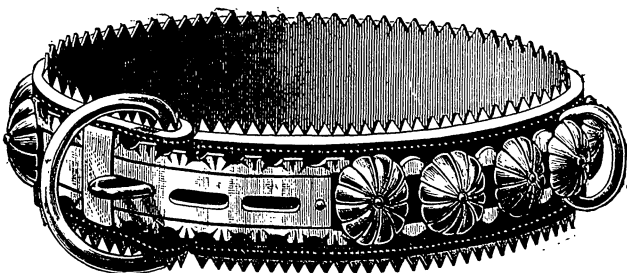
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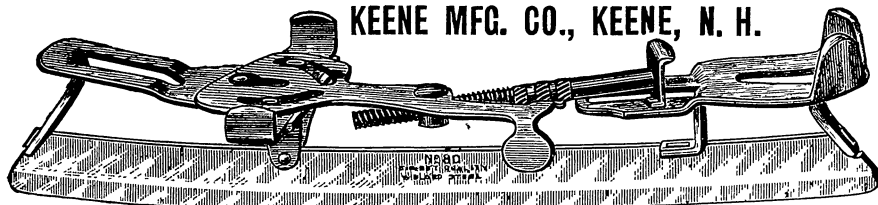


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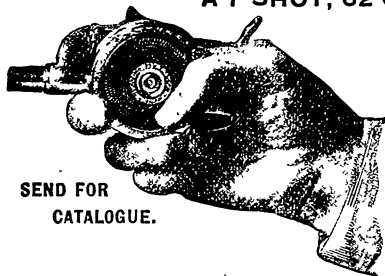
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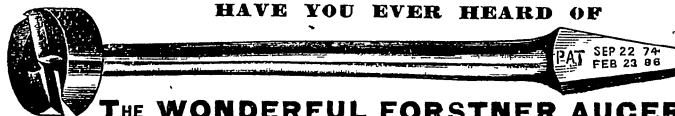
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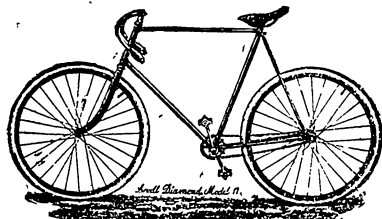
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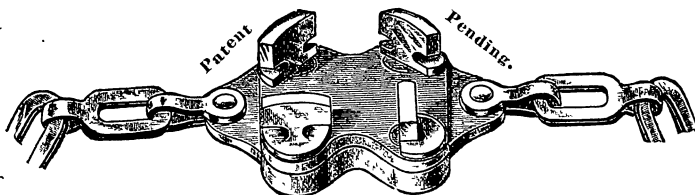
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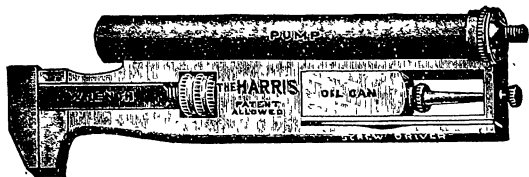
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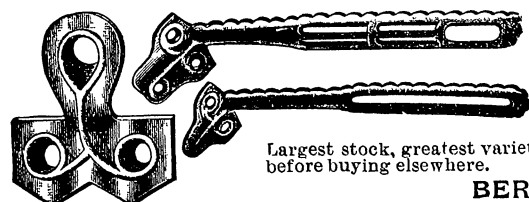


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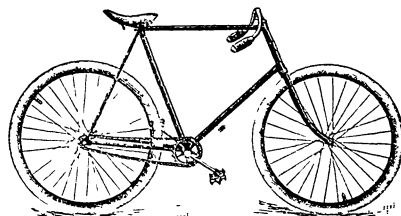
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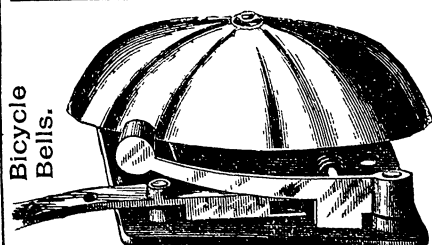
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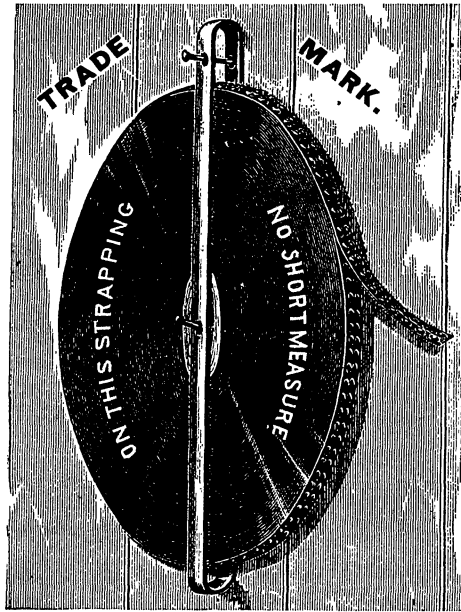
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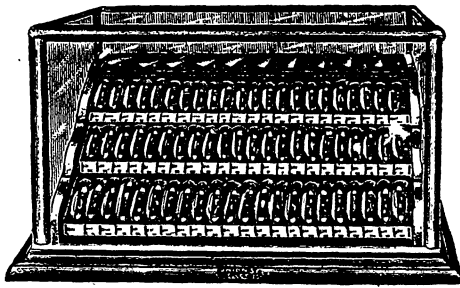
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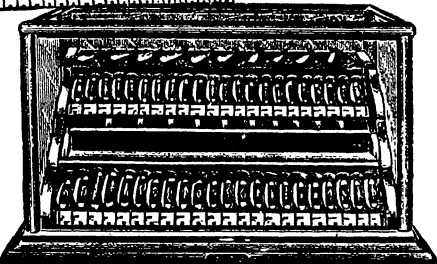
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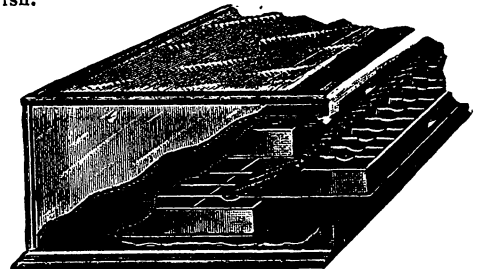
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2½	.53	.59	.68
3	.55	.62	.73
4	.60	.68	.84
5	.65	.75	.96
6	.70	.81	1.11
7	.75	.84	1.21
<b>Gallons.</b>			
2	.85	.96	1.81
2½	1.05	1.18	1.56
3	1.20	1.35	1.70

The success of the effort to give the lists in small space is illustrated in many of the lists, in which a clear and condensed arrangement is secured. For instance, the wrench list occupies but 3 inches by ½ inch, while the list of Stove Hollow Ware, in very small space, gives the list prices on a large and important line of goods which often occupy several pages in catalogues. In several lists, such as Strap and T Hinges and Butts, a new arrangement is adopted, which is regarded as presenting these lists in a very convenient as well as condensed form.

As is obvious from the lists herewith reproduced, the shape and size of the different lists varies greatly, the aim being to give each list the smallest and most convenient arrangement possible. None of the lists are, however, more than 3½ x 6 inches in size, very few of them being as large as this and most of them very much smaller. In use it is intended that they shall be trimmed closely before they are inserted in price books, when they may be attached either by one edge close to the hinge of the book, as will, perhaps, be most convenient with the larger lists, permitting the use of the entire page for memoranda, or the smaller lists may be pasted on the page in connection with the entries in regard to discounts, freights, &c. Many of the lists are so compact in arrangement as when thus inserted to leave ample room for recording quotations.

### Wrenches.

	6	8	10	12	15	18	21
<b>Inches.</b>							
Black...	\$9.00	\$10.00	\$12.00	\$14.00	\$24.00	\$30.00	\$36.00
Bright..	10.00	11.00	14.00	16.00	26.00	32.00	38.00

and inserted in price books, and can be used in connection with any of The Iron Age Hardware Price Books.

That the Standard Hardware Price Lists meet a want of the trade is evident from the fact that a Third edition is already called for.

EVERY HARDWAREMAN SHOULD HAVE A COPY. Price 25 cts.

Sent, postpaid, on receipt of price, by DAVID WILLIAMS, Publisher, 96-102 Reade Street, New York.

### Stove Hollow Ware.

	6	7	8	9	10	11
<b>POTS, KETTLES, ETC. (CAST IRON.)</b>						
No.....						
Pots.....	\$0.65	.75	.85	1.00	1.25	1.75
Kettles.....	.55	.65	.70	.85	1.00	1.40
T Kettles.....	.75	.80	.90	1.00	1.25	....
Spiders.....	.27	.30	.35	.40	.50	.60
Griddles Round	.22	.25	.27	.30	....	....
" Long..	.40	.50	.60	.75	....	....

### SCOTCH AND YANKEE BOWLS.

	1	2	3	4	5	6
<b>No.....</b>						
Scotch Bowls..	\$0.35	.40	.45	.50	.60	.70
Yankee Bowls.	.35	.45	.55	.65	.75	.90

### Glue Pots.

	4/0	3/0	2/0	0	1
<b>No.....</b>					
4/0....	\$4.50				
3/0....	5.00				
2/0....	5.50				
0.....	6.00				
1.....	6.75				

	2	3	4	5	6
<b>No.....</b>					
2.....	\$8.40				
3.....	10.26				
4.....	12.42				
5.....	14.58				
6.....	16.94				

**"Puritan"**

Cookers,  
Coffee Pots,  
Chafing Dishes,  
Vegetable Dishes,  
Egg Poachers,  
Universal Measures, etc.

**"Never-Break"**

Seamless  
Steel  
Spiders,  
Griddles,  
Kettles,  
Stew Pans, etc.

**"Excelsior"**

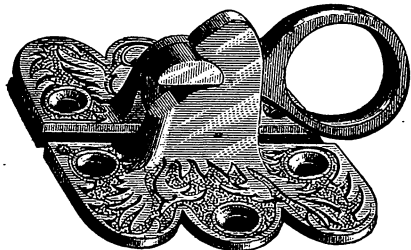
Steel  
Baking  
and  
Roasting  
Pans.

Write for Catalogue and Discounts.

THE BRONSON SUPPLY CO., - - - NEW YORK and CLEVELAND.

**"CONROY"****Refrigerator Door Fasteners**

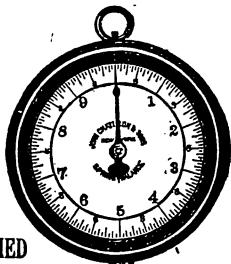
Have rapidly supplanted all others.

**Refrigerator Trimmings.**

P. J. CONROY & CO., Paschall, PHILADELPHIA.

# John Chatillon & Sons,

85, 87, 89, 91, 93 CLIFF ST., NEW YORK.



ESTABLISHED  
1835.

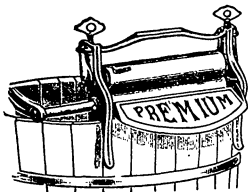
SEND FOR  
PRICE-LIST.



Sole Agents for  
**Foster Bros.' Butchers' Cutlery.**



John Chatillon & Sons, N. Y.



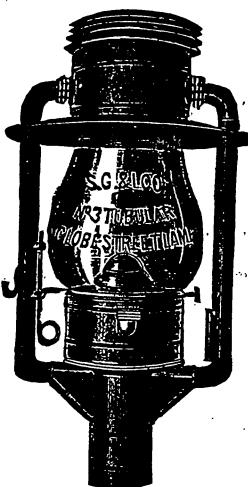
COLBY WRINGER CO., - Montpelier, Vt.

MANUFACTURERS OF THE

**Premium Wringer,**

With Automatic Apron Adjustment.

SURPLESS, DUNN & ALDER, Direct Representatives,  
15 Murray Street, New York.



No. 3

Globe Street Lamp.

Light your Streets and Driveways.

The S. G. & L. CO.

## Tubular Globe Street Lamp

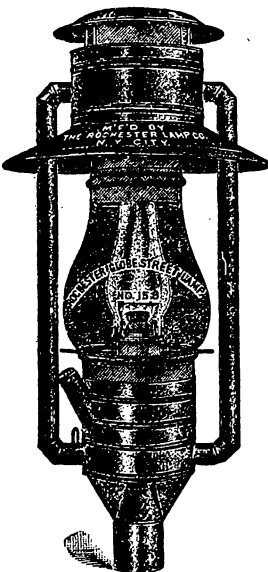
IS THE Best Street Lamp Manufactured.  
Equal to the best Gas Light.  
Will not Blow Out in the Strongest Wind.  
Will not Smoke.  
Will not Freeze.  
Automatic Extinguisher.  
Outside Wick Regulator.  
Will Burn Four Hours for One Cent.

MANUFACTURED BY

**STEAM GAUGE AND LANTERN CO.,**

SYRACUSE, N. Y.

Western Branch, 25 Lake St., Chicago, Ill.



## The Rochester Globe Tubular - - Station and Street Lamp.

It's a long name, but it tells a good deal. It tells you of a new Street Lamp with "The Rochester" Central Draft Burner. A central draft burner (round flame) gives three times the light of an old style flat-wick burner. The first and only Tubular Globe Central Draft Lamp ever made! Storms, rain, snow, sleet or hail do not affect it. Burns all night. Made with either bail or post socket, with 26 inch enamel reflector if wanted, for railroad and other uses. Takes regular No. 3 or 9 street lamp globe, to be had everywhere. For Railroad Stations, Ware-rooms, Mills, Docks, &c., it is the best lamp ever made. Price, \$6.00; send for trade discount.

MANUFACTURED ONLY BY

**THE ROCHESTER LAMP CO.,**

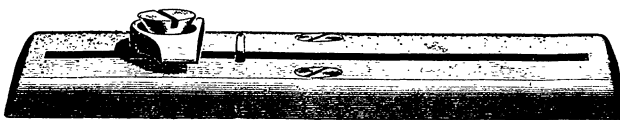
42 PARK PLACE, }  
37 BARCLAY ST., } NEW YORK.

## This is the "SALEM" HANGER.

And when it is on the window casing, a TEN-ANT can put up ANY SHADE FIXTURE that is made without using a screw. THE MAN INTERESTED is the owner of the house. THE MAN to sell the "Salem" to the owner IS THE HARDWAREMAN.

Write us for Price-List.

The W. A. South Co., Salem, Mass.



Whenever you see a man stealing ideas from his neighbor you may put him down as you would a heavy pumpkin. Yellow is all right as a color but it looks better in the pumpkin.—Puddinhead's son Will.

**W**E ARE the originators of a combined Show Case and Money Drawer for which we have applied for patent, and our attorneys assure us that our invention is novel and that we will be allowed clear and broad claims and a valid patent.

We therefore CAUTION all persons to not buy or sell said Combined Show Case and Money Drawer excepting those bearing our name plate. We will prosecute all offenders for infringement and damages soon as our patent is allowed, and thus resent the outrageous attack on our business.

We are also the originators of a certain line of Coffee Mills, Money Drawers and Rat Traps and are selling these goods at "hard pan" prices.

When in the market kindly write us.

## WADDEL WOODEN WARE WORKS, — GREENFIELD, OHIO. —

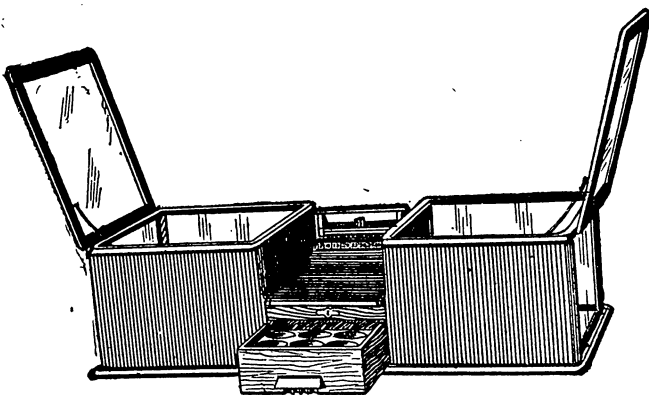
# Sift It Down Fine.



And where can you find a sifter that excels in any particular "The Hunter?" We will not even except price. If you want the best, and who does not? and that promptly, we can furnish them. We are now able to turn out over 4,000 daily. If others are so much superior, why don't they sell? Write for prices.

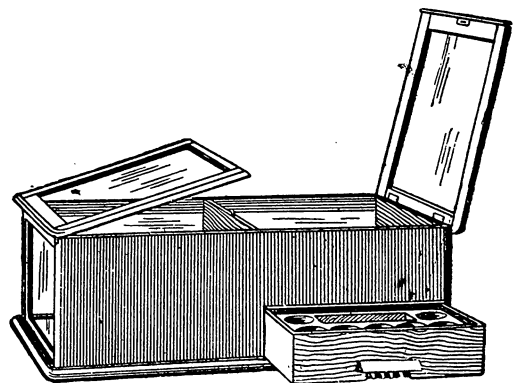
**The FRED. J. MEYERS MFG. CO.,**  
**HAMILTON, O.**

F. J. MATTISON, Eastern Agent,  
69 Beekman St., NEW YORK.



Combined Cash Register and Showcase Cash Drawer with Combination Lock.

PRICE \$25.00, F. O. B. FACTORY.



Combined Showcase and Cash Drawer Combination Lock.

PRICE \$12.00, F. O. B. FACTORY.

— Combination Lock on Cash Drawer susceptible of 33 changes; can be set to a different combination in an instant. Automatic Lock on lid of Showcases that is operated by opening or closing Cash drawer. Case cannot be opened from outside and can only be opened by knowing combination. Alarm Bell is sounded every time drawer is opened.

CASH REGISTER KEEPS RECORD OF ALL SALES AND ADDS IN DETAIL THE FULL AMOUNT.

### HUSTLING DEALERS CAN SELL HUNDREDS OF THEM.

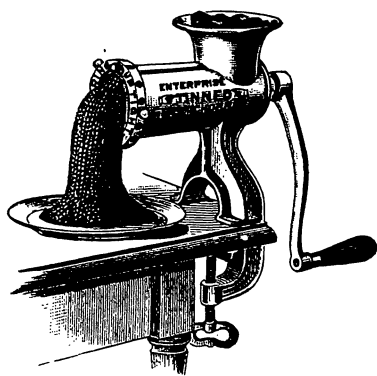
The demand is greater than the supply. Hard times cut no figure. Be quick if you want the cream of the trade.

**THE SUN MANUFACTURING CO.,**  
Greenfield, Ohio,

MANUFACTURERS OF  
Cash Registers, Money Drawers, Showcases, Coffee Mills, Specialties  
and Novelties.

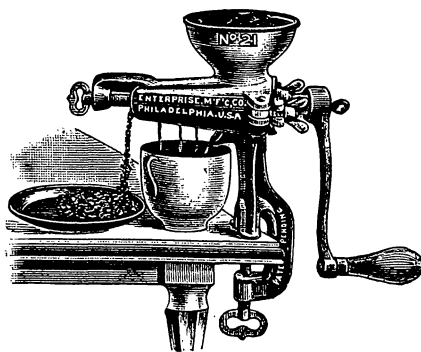
# THE "ENTERPRISE" COODS ALWAYS IN THE LEAD.

MEAT CHOPPER No. 10.



PRICE \$3.00.

MEAT JUICE EXTRACTOR No. 21.



PRICE \$2.50.

FOR SALE BY THE  
Hardware Trade.

THE ENTERPRISE MANUFACTURING CO. of PA.

3d & Dauphin Sts., Philadelphia, Pa.

SEND FOR AN  
Illustrated Catalogue,  
FREE.

## Low Prices and High Quality.

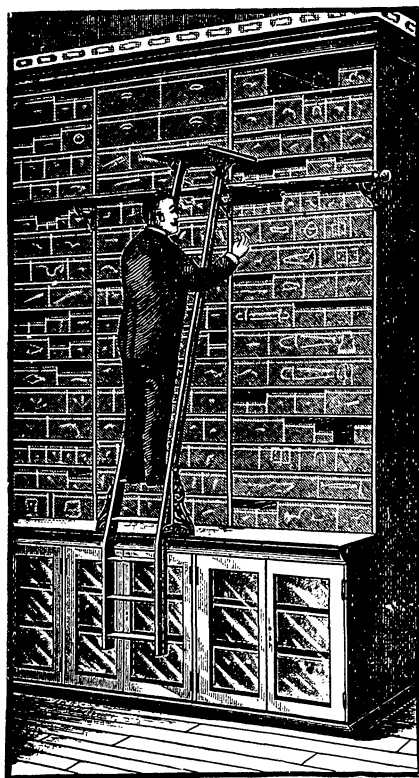
Our styles of Corn Poppers  
are guaranteed to be all  
of the latest and best.

Write to know what  
our quantity discounts  
are.



Dealers everywhere are entitled to New Catalogue and New Prices.

Bromwell Brush & Wire Goods Co., - - - Cincinnati, O.  
ESTABLISHED 76 YEARS.



### THE BICYCLE STEP LADDER.

Highest Award, Columbian Exposition.  
The Newest, Neatest, Simplest, Easiest Operated  
and Safest Store Ladder made.  
Ladders are not suspended, but Supported from  
below on wheels. Move easier with operator on than  
others when empty. Highly finished, and very hand  
some. Made in different grades and prices to suit.  
Send for illustrated catalogue and prices.  
See this space next week for other styles.

The Bicycle Step Ladder Co., 50 State Street,  
Chicago, Ills.

THE CHAS. PARKER CO. MERIDEN  
MANUFACTURERS OF  
THE PARKER GUN VISES THE PARKER LAMP  
WOOD SCREWS COFFEE MILLS,  
CABINET-LOCKS SPOONS &c.



This illustration represents our Columbia One-Pound Mill No. 260.

The Handsomest and Best Mill of this Character in the Market.

We have over sixty other styles and sizes. Catalogues furnished dealers.

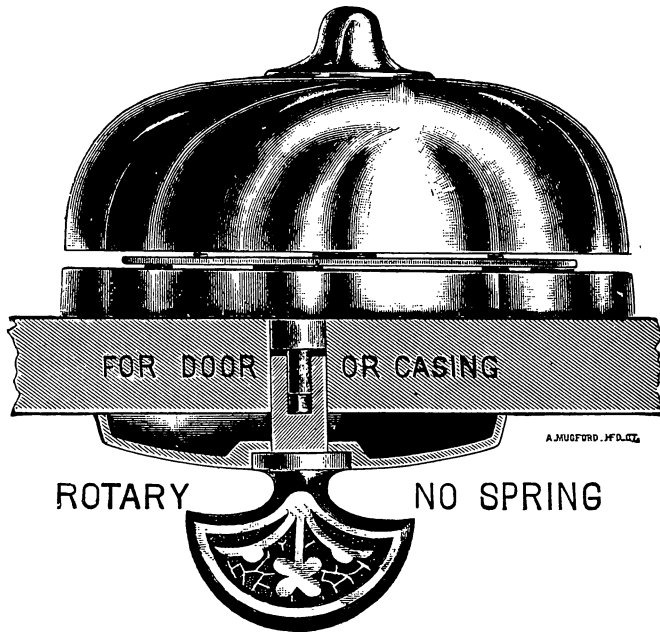


# NEW DEPARTURE "ROTARY" DOOR BELLS

## ELECTRICAL RESULTS.

3 Inch.

No. 91, Nickel Plated.  
No. 92, Bronze Plated.  
Per Doz., \$17.50.



3 1/2 Inch.

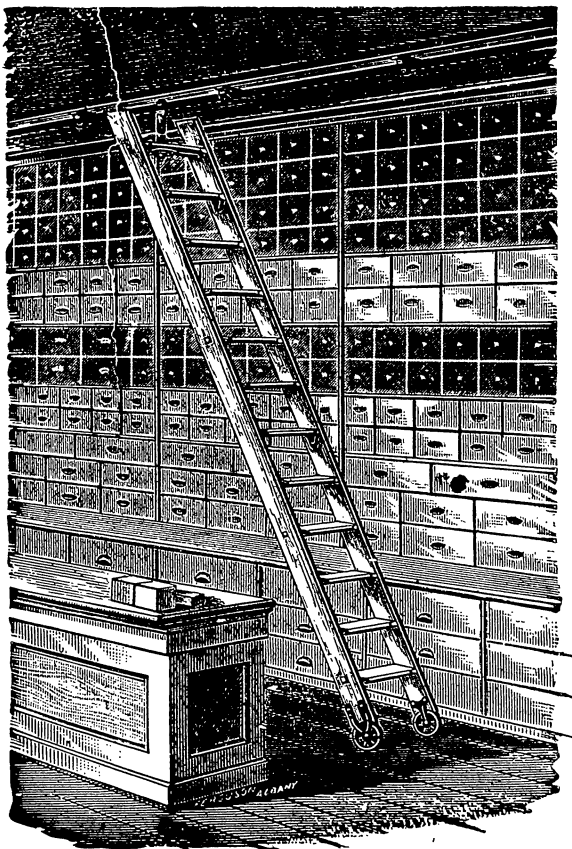
No. 101, Nickel Plated.  
No. 102, Bronze Plated.  
Per Doz., \$20.00.

Simply turning the knob about **one-fourth** in either direction produces about **ten clear, full tones**, which though not startling or annoying, can be better heard all through the house than any bell ever made to imitate Electrical Results.

SOLE AGENTS,

**JOHN H. GRAHAM & CO.,** { 113 Chambers St.,  
N. Y. CITY, N. Y.  
**WRITE FOR PRICES.**

## THE "NOISELESS" STORE LADDER.



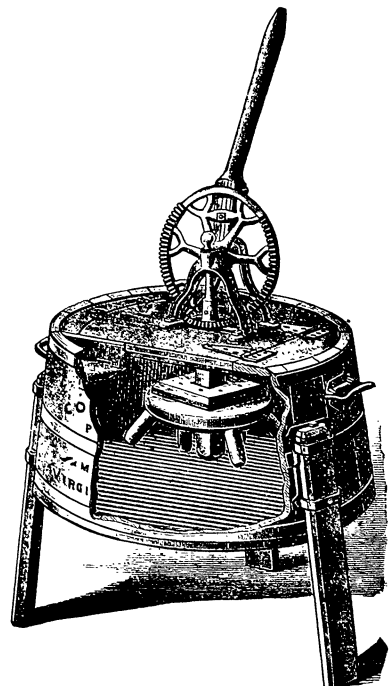
The latest and best. Perfectly noiseless. Neat in appearance.

Manufactured by

**M. CROISSANT,**

**ALBANY, N. Y.**

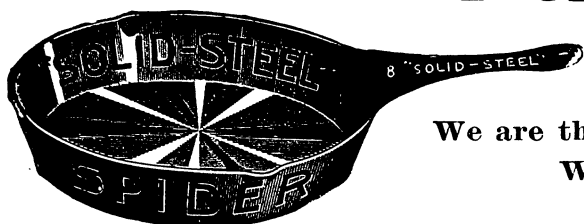
## The Columbia Washing Machine.



Made of best selected Virginia White Cedar. Extra heavy hoops and castings, and the only machine with Galvanized Hoops, Castings and Trimmings.

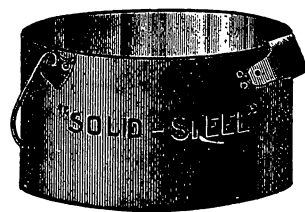
Sides and Bottom Corrugated.  
Prices and Catalogue Sent for the Asking.  
**RICHMOND CEDAR WORKS,**  
Manufacturers of Woodenware, RICHMOND, VA.

# "SOLID-STEEL" SEAMLESS HOLLOW WARE.



No Seams, no Rivets in "Solid-Steel" Ware.

We are the leaders in Steel Hollow  
Ware and all Sheet  
Metal Work.

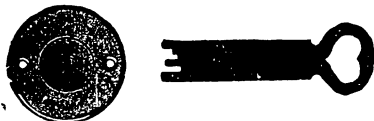
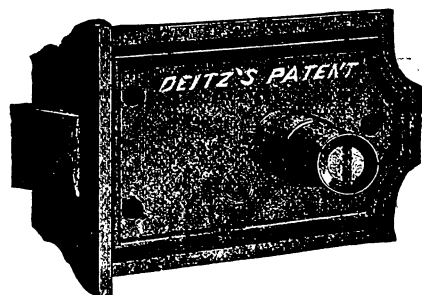


"Solid-Steel" Maslin Kettle.

**The Cleveland Stamping & Tool Co., Cleveland, O.**

We do Light and Heavy Stamping and Blanking. Also build Dies and Stamping Machinery.

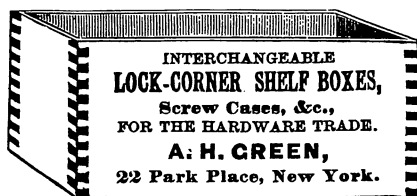
**A. E. DEITZ**



No. 109 Lock.

**J. C. McCARTY & CO., Agents,**  
97 Chambers and 81 Reade Sts., New York

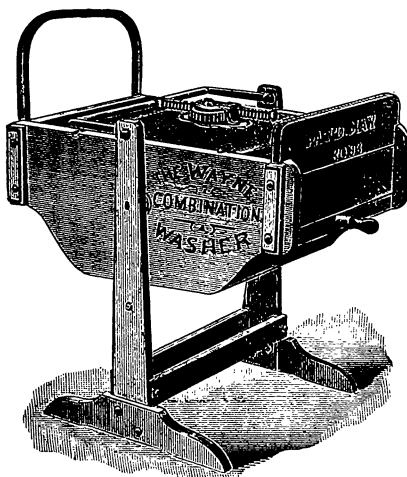
Factory, **BROOKLYN, E. D., N. Y.**



# RUB! RUB! RUB!

(The old back  
breaking way.)

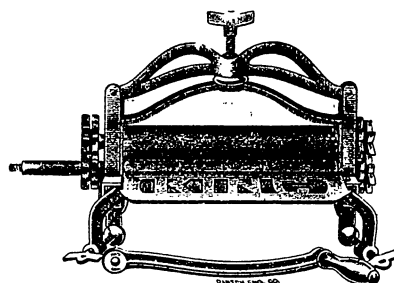
Thousands are using the Anthony Wayne Combination Washer.



# WHY?

Ask any one of them They will tell you it's because they do not experience "that tired feeling," as when using other makes, besides it was got up so that a woman could use it without finding fault with its work. Have you had our circular, Mr. Dealer? If not send us your address.

**Anthony Wayne Mfg. Co.,**  
**FT. WAYNE, IND.**



We are Sole Manufacturers of the  
Celebrated Erie and King Wringers.

We also make all other brands of Wood and Iron  
Frame Wringers.

Exclusive sale of the **ERIE** and **KING** Wringers  
given to one dealer in each town.

Write for Catalogue.

**THE NATIONAL WRINGER CO., CANTON, OHIO.**

New York Office, 107 Chambers St., John T. Ryan, Mgr.

# NEW S. & P. ACME CAKE GRIDDLES

FOR GAS.

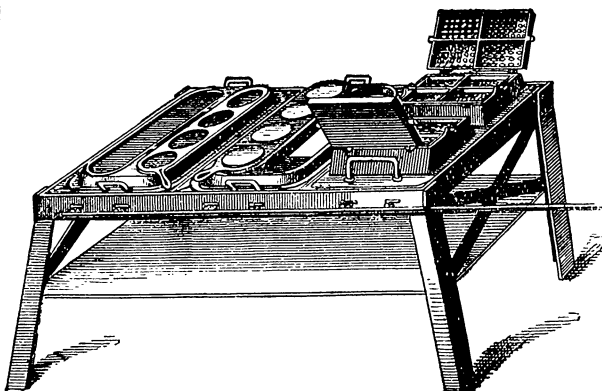
FOR USE IN

Hotels, Restaurants  
Eating Stands,  
Etc.

CIRCULARS AND PRICES ON  
APPLICATION.

THE

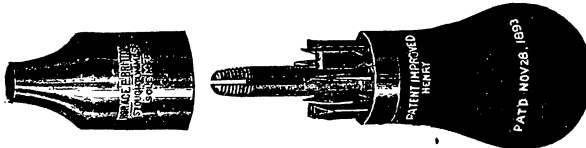
**Stuart & Peterson Co.,**  
Burlington, N. J., U. S. A.



# PATENT IMPROVED

HENRY COMBINATION HAFT,

Containing five Brad awls, one  
Chisel, Screw Driver, Diamond Point  
Awl, Marking Awl, Counter Sink,  
Jack Pulver and Reamer. Send for  
Circular of full description and  
Illustration. If you would have  
the Best, get the Patent Improved.  
Sent post-paid on receipt of \$1.00.



**HORACE E. BRITTON, Patentee and Sole Manufacturer, STOUGHTON, MASS.**

Reliable Torches are  
what you want.



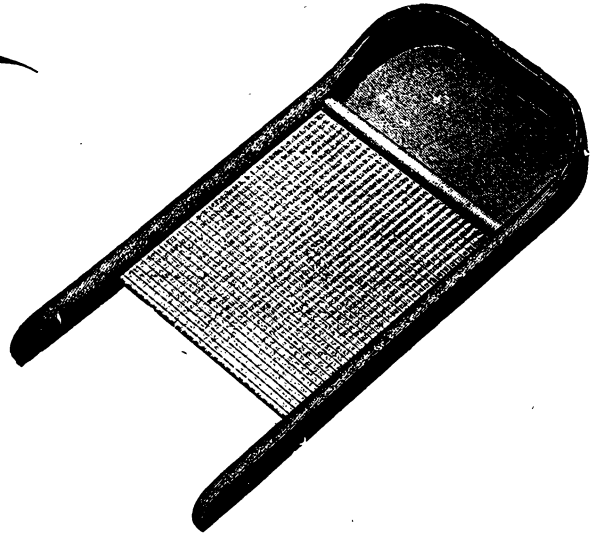
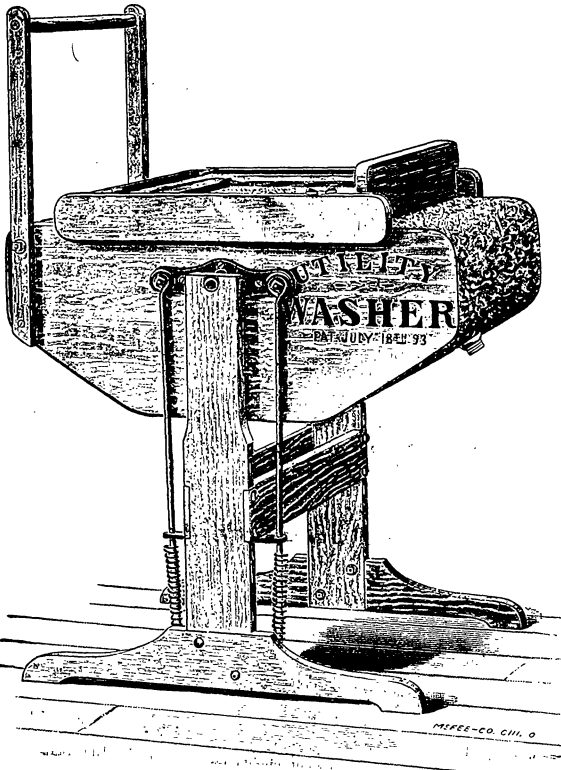
Made either for Oil or  
Gasoline.



These Torches are particularly adapted for use in  
Factories, Foundries, Machine Shops, Rolling Mills  
Blacksmith Shops, Warehouses, &c. They make a  
strong white light, are free from smoke and are not  
affected by wind or rain. They are convenient and  
portable. These Torches can be run at an expense of  
about one-half cent to one cent per hour, burning a  
bright, steady light which is ten times greater than  
the light of an ordinary gas burner.

Write us for prices. A liberal discount given to the  
trade. Manufactured by  
**THE SCHNEIDER & TRENKAMP CO.,**  
Nos. 479 to 497 Case Ave., Cleveland, Ohio.

# Utility



## Washer and Board

Your customers can get along without both, but neither separately. The washer has the peculiarity of washing the clothes clean and not wear out either it or the operator. While the board is something entirely new yet thoroughly tested and proven the best made. Write for prices, please.

**Olds Wagon Works,**  
Fort Wayne, Ind., U. S. A.

## No. 4 RATTAN MIXED BROOM.

The Best Warehouse, Stable, Shop, Factory and Railroad Broom in the Market.

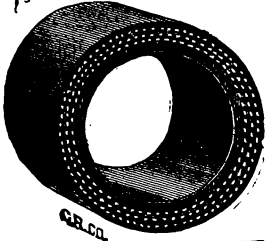
Made of Broom Corn and Rattan Reed mixed together, flat in shape, with an iron band, as shown in the cut, making it solid, substantial, and stiff, for handling the heaviest dirt. Will last longer than any other similar broom.

Brooms and Brushes for Railroad Shops, Warehouses, Street, Stable, Bloom. Chill, Casting and Moulding purposes a specialty. Write for prices.

**JOSEPH LAY & CO., RIDGEVILLE, IND.**



NEW SEAMLESS TUBE



SALES OF  
Over Two Million Feet

—OF—  
**GARDEN HOSE**

alone during the past year, distributed throughout the United States, and not a single piece complained of, justifies us in guaranteeing that it will give absolute satisfaction.

## Who Has Not Had Bad Hose ?

Who has not lost time, patience, money, by attempting settlement for such goods ?

**THE CAUSE** in nine cases out of ten is the lapped seam.

**THE REMEDY** is in buying our

### PATENT SEAMLESS TUBE HOSE,

made by machinery, the tube run like lead pipe, through a die. There is no lapped tube, no seam, no cracks, no defects; water cannot get through to rot the duck and cause the hose to burst.

Made in All Sizes and Kinds of Garden, Engine, Steam, Fire, Brewers,' Cotton Hose, &c.

Order a Sample Bale of our Seamless-Tube Hose—Best in the World, costs no more than ordinary lapped-seam hose. The different colors, Red, White, Black, Green and Yellow, make a fine window or sidewalk attraction.

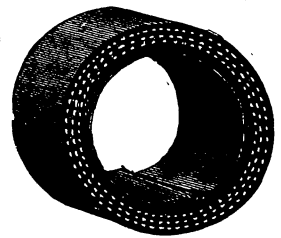
## CLEVELAND RUBBER WORKS

of the Mechanical Rubber Co.,

CLEVELAND, O.

Makers of Mechanical Rubber Goods, Clothing, Druggists' Sundries, Specialties, Etc.

OLD LAPPED TUBE



We were awarded an order of 25,000 ft. for World's Fair of our celebrated

**Seamless-Tube**  
COTTON RUBBER-LINED HOSE

**We Want Your Trade.**  
Send for 60-page Catalogue.  
Write for Prices and Samples.

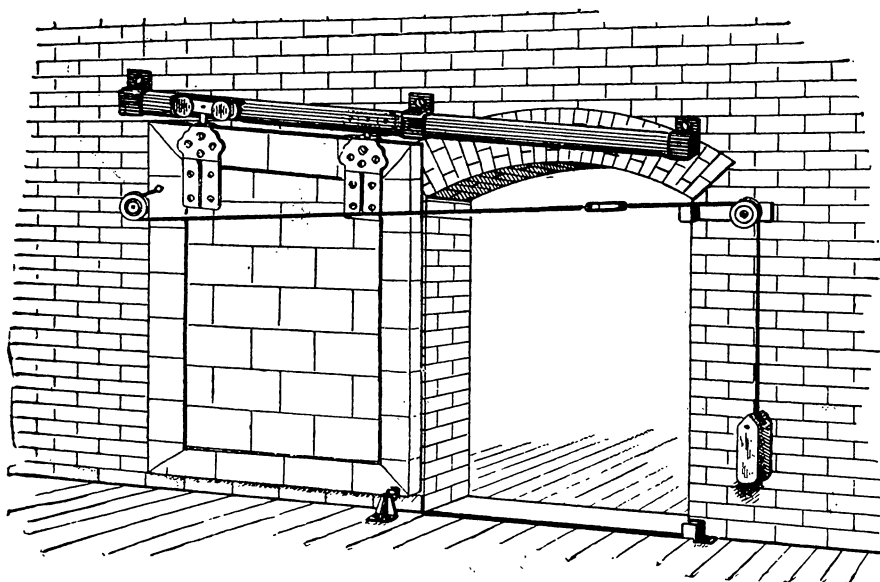
A practical means of rapidly reaching absolutely accurate results without the mental wear of computing.

# LADD'S DISCOUNT BOOK.

It gives at a glance the net of any sum at a great range of discounts, simple and complex, and it is accurate, rapid and practical. Price, \$3.00; Double Indexed Edition, \$4.00.

Mailed, postpaid, upon receipt of price by **DAVID WILLIAMS**, 96-102 Reade Street, New York.

# THE COBURN SELF CLOSING FIRE DOOR.



EQUIPPED WITH AUTOMATIC  
FIRE DOOR FITTINGS.

The only absolutely fireproof runway in the world. This can be applied to brick walls at a less expense to builder than any other device. No woodwork to warp, wear or burn or to protect with a covering of tin. Track cannot be twisted off the wall by excessive heat, and in case of fire the door will hang as long as wall stands, the track being bolted direct to the brick walls. More easy to apply than any other fixture.

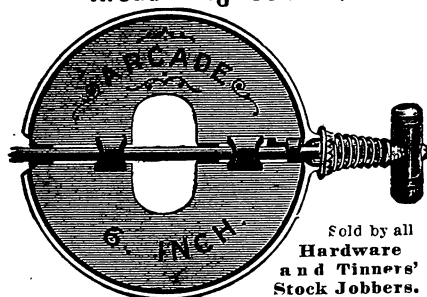
GET our CATALOGUE of  
PARLOR BARN FIRE Door Hangers  
—AND—

## TROLLEY STORE LADDERS.

# COBURN TROLLEY TRACK MFG. CO.,

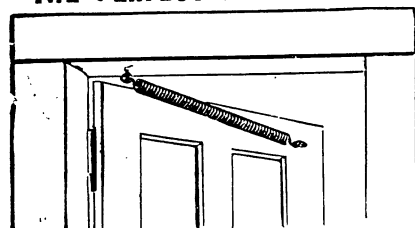
HOLYOKE, MASS.

Made by Arcade Mfg. Co., Freeport, Ill.



Sold by all  
Hardware  
and Tinnery  
Stock Jobbers.

### THE PERFECT DOOR SPRING.



**Cheap, Simple, Durable, Effective.**  
Best Screen Door Spring made. Send for our list of references, comprising some of the first houses in the land. They sell readily, and that is what you are looking for. Drop us a postal.

COILED WIRE BELTING CO.,  
40 & 42 Noble St., Jersey City.

49

CHURCH PEW AND HOUSE NUMBERS,  
Of Bronze Metal, in all Modern Finishes.  
RANSON HARDWARE CO, Burlington, Vt

## An Investment

That soon pays for itself, and a fixture you will wonder how you have got along without. Hundreds of recommendations to this effect. This is without doubt the best device of the kind on the market to-day. Steel rail planed to get the smoothest surface. Brackets made to fasten to standards, pilasters, or shelving direct. Can be adjusted to shelving with wide or narrow ledge, and can also be fitted where there is no ledge and can be used on circular rail as well.

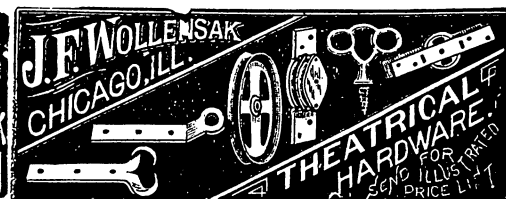


WORLD'S FAIR AWARD.

A postal card will get our Catalogue.

## Morley Brothers,

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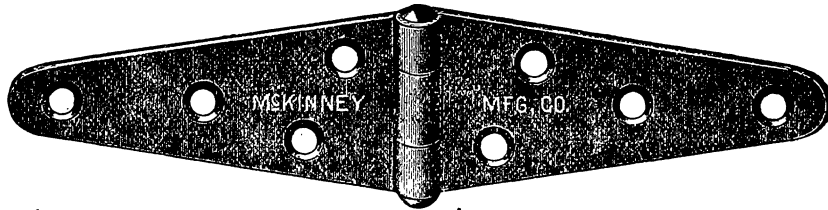


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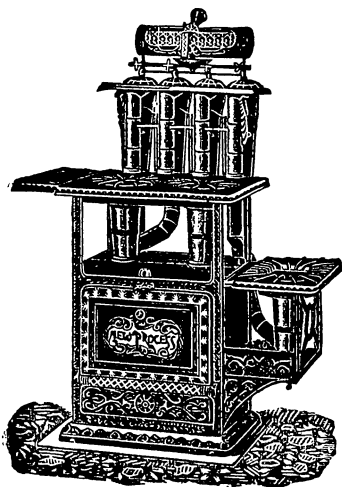
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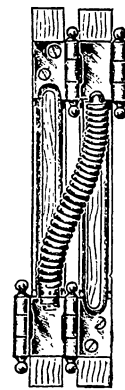
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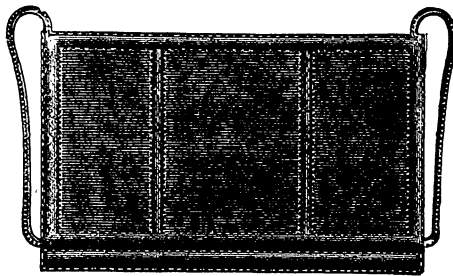
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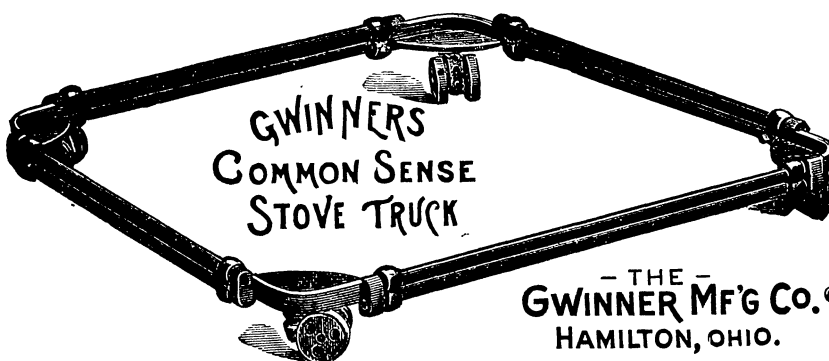
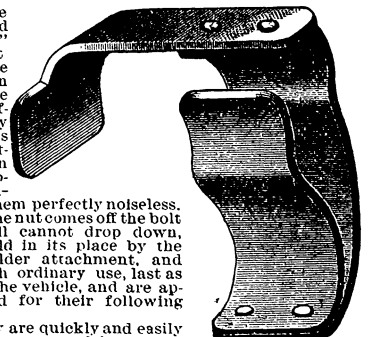
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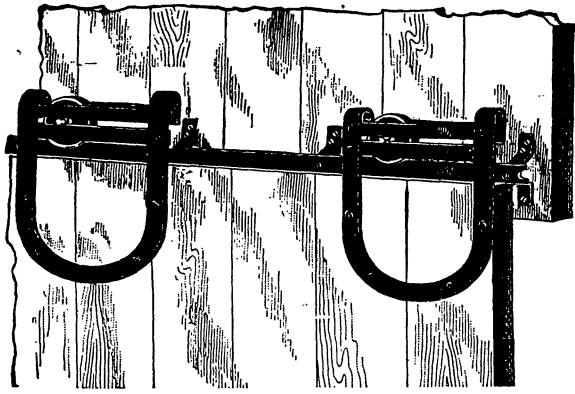
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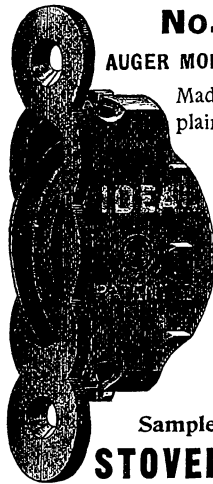
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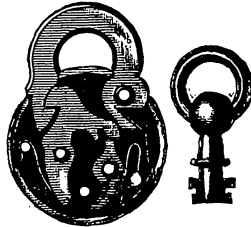
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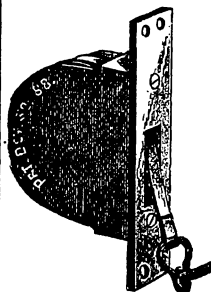
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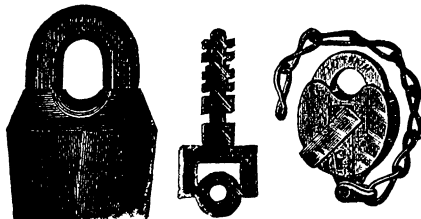
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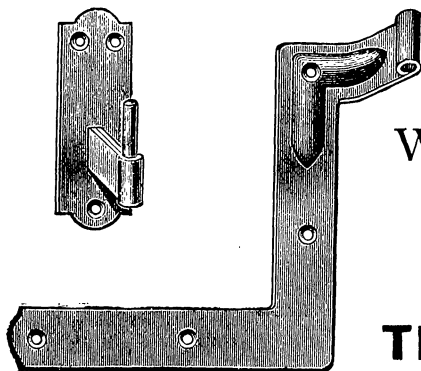
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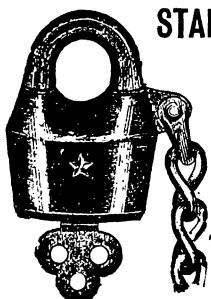
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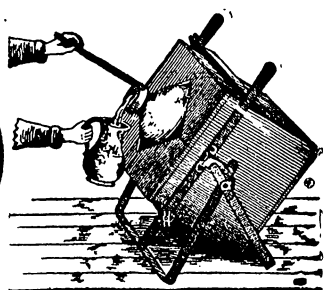
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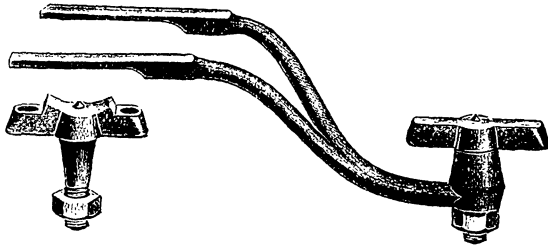
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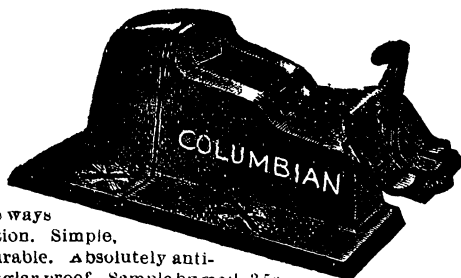
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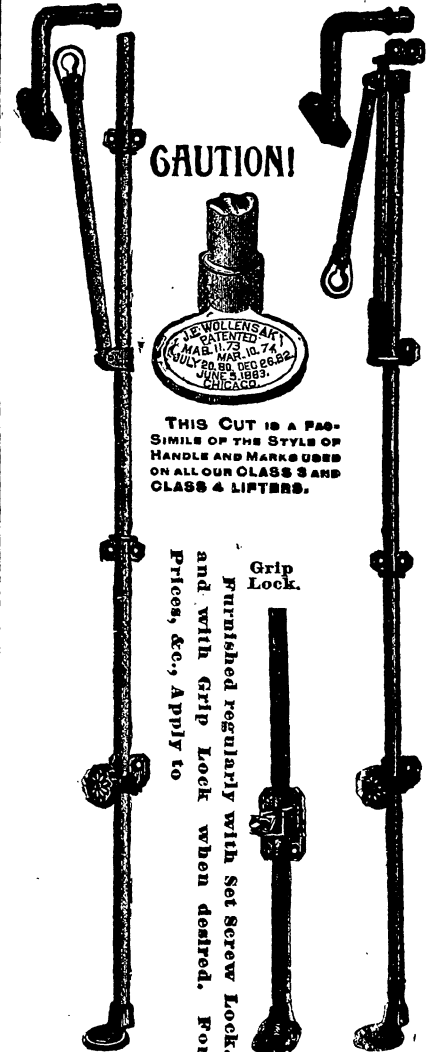
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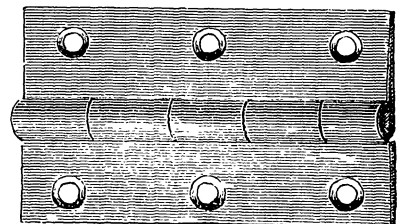
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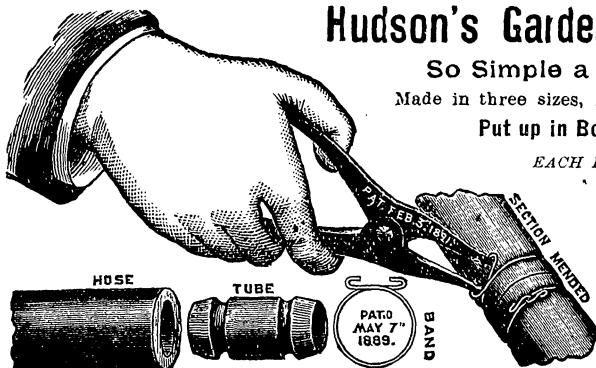
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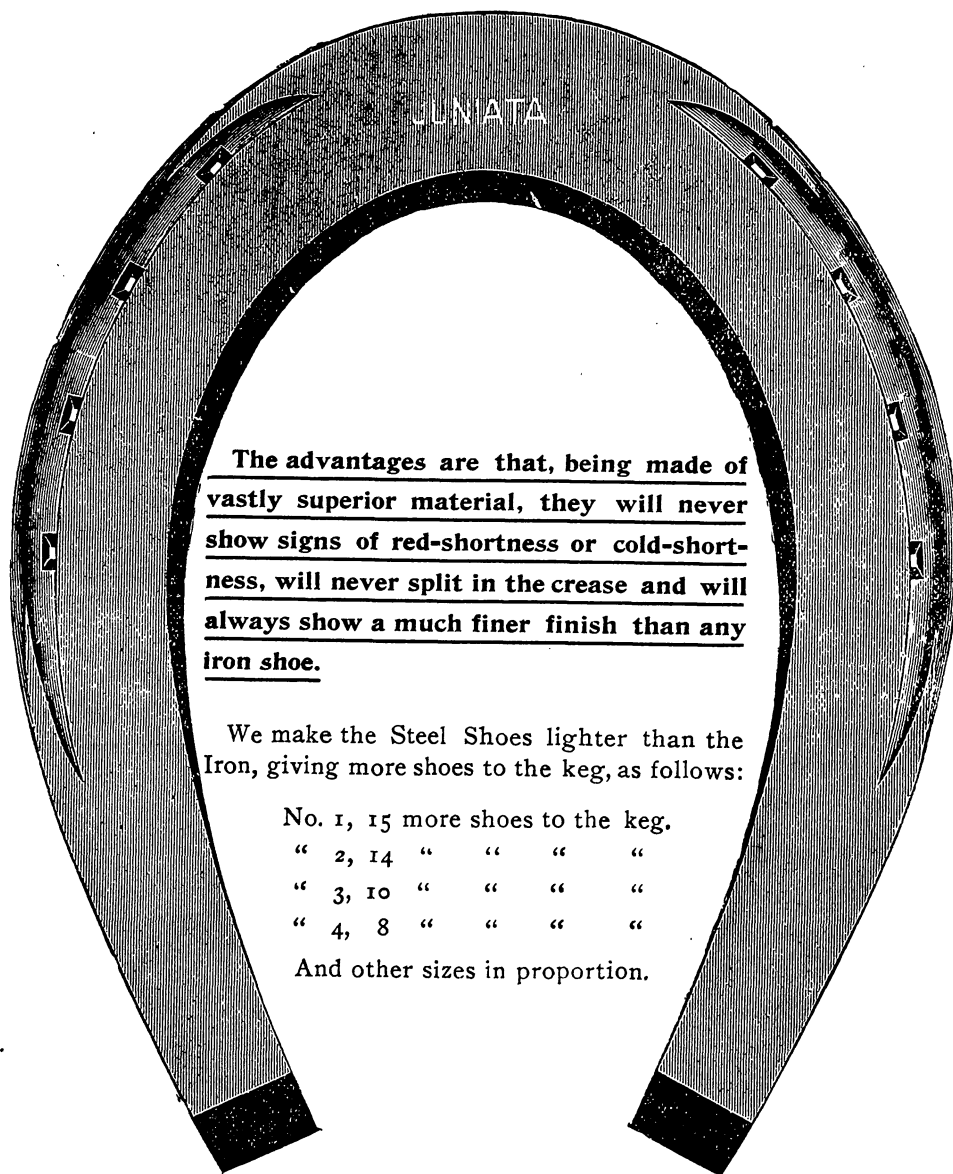
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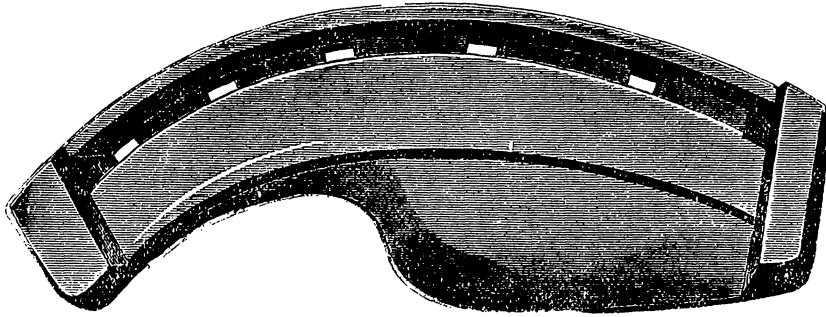
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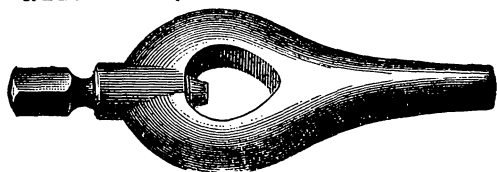
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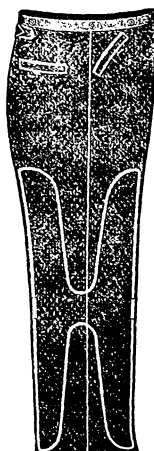
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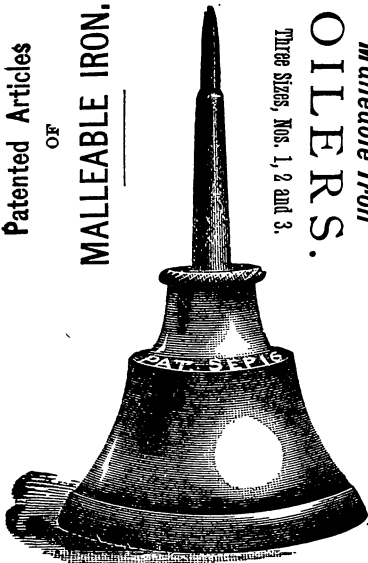
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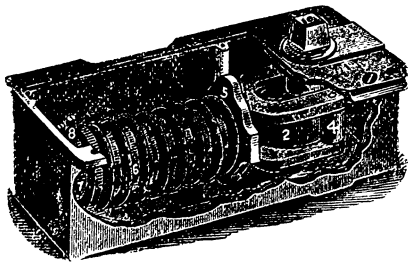
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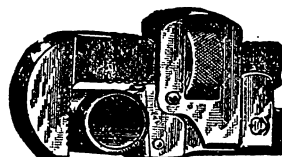
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Case-Hardened Throughout. Parts Interchangeable.

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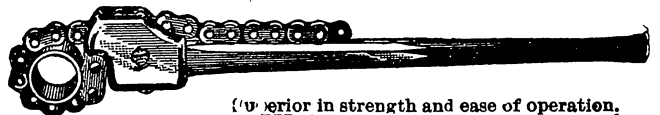
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All parts interchangeable.

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Superior in strength and ease of operation.  
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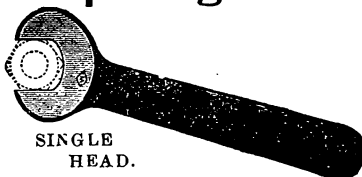
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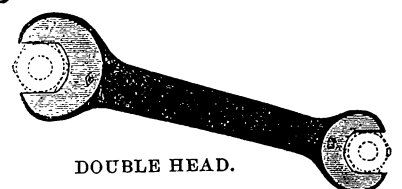
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DOUBLE HEAD.

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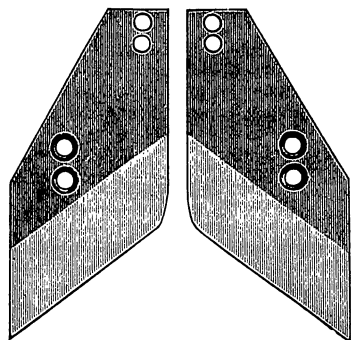


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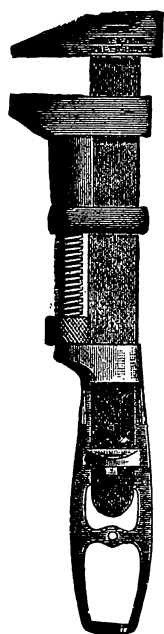
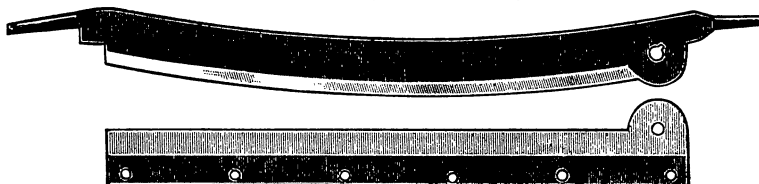
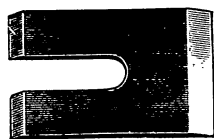


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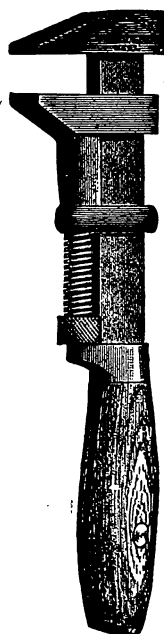
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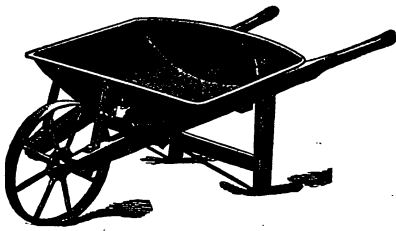
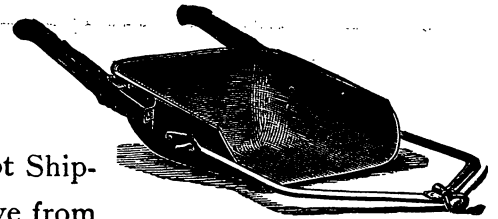
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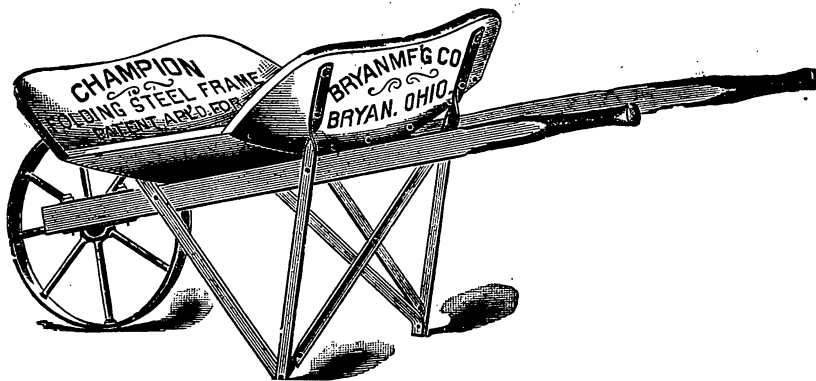


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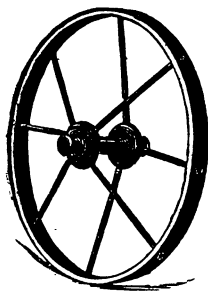
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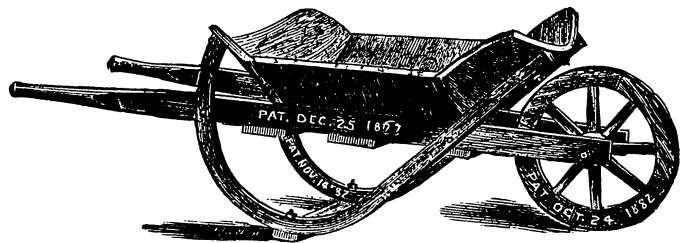


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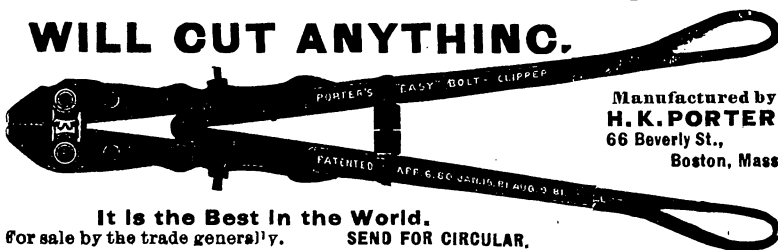


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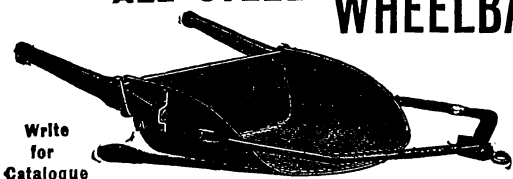
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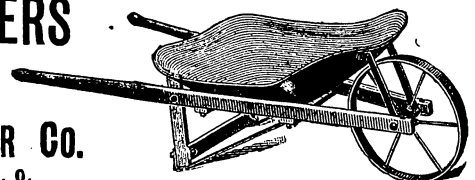
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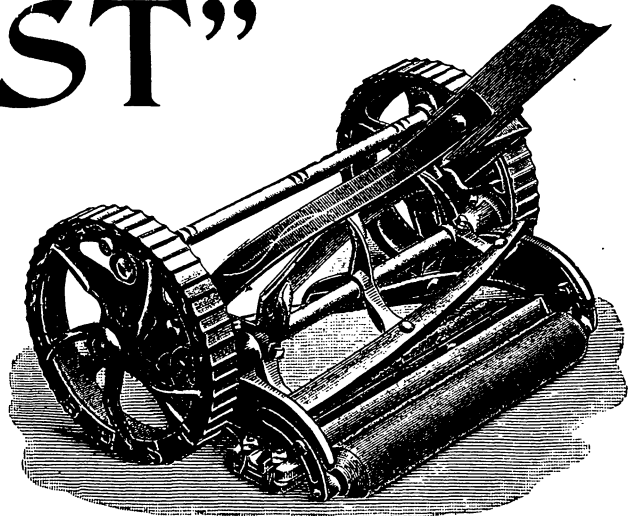


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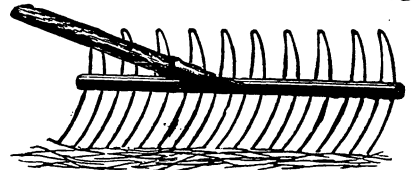
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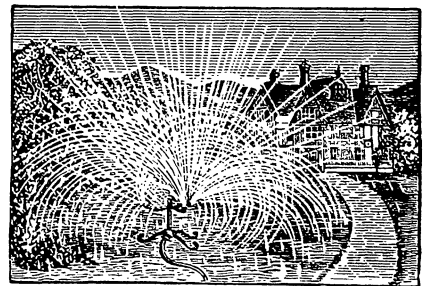
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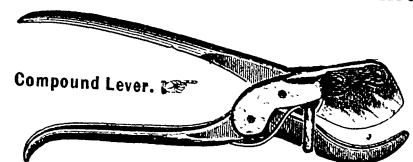
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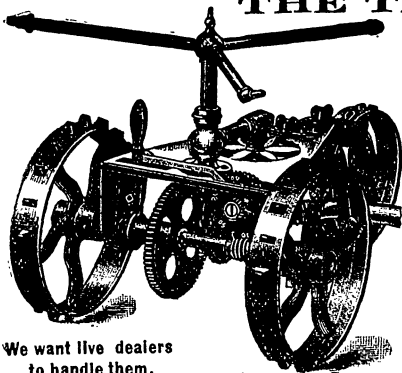
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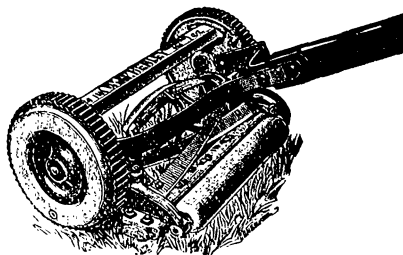


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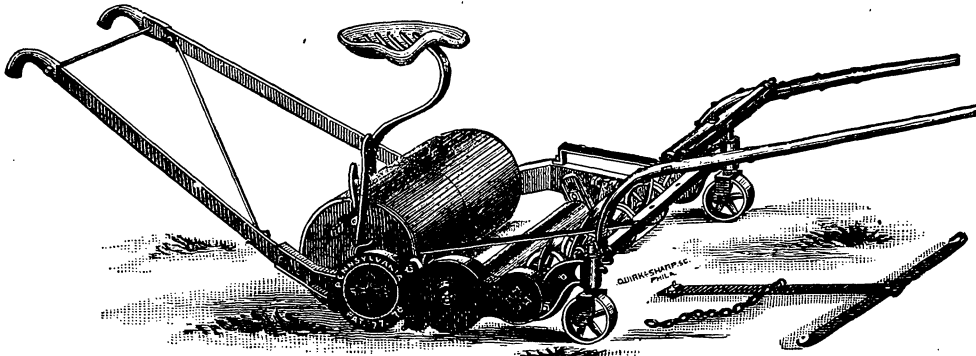


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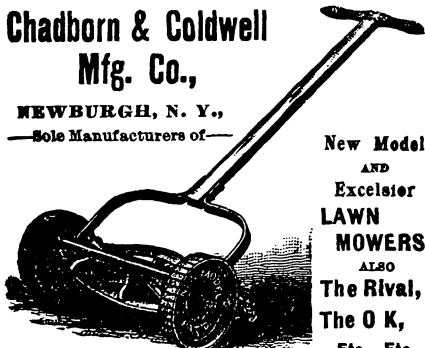
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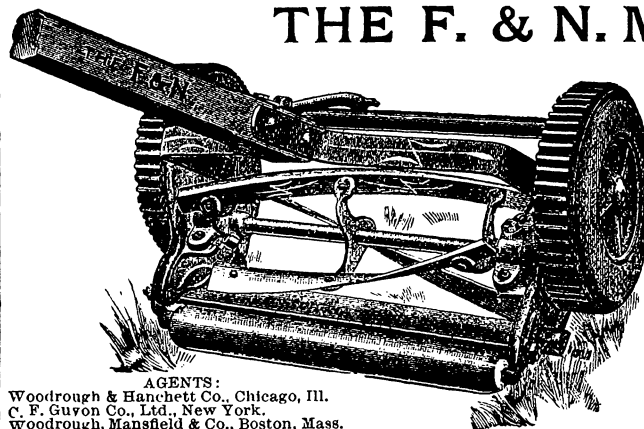
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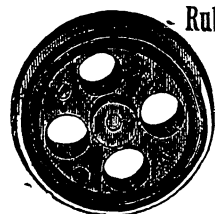
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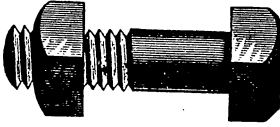
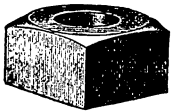
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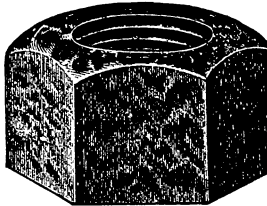
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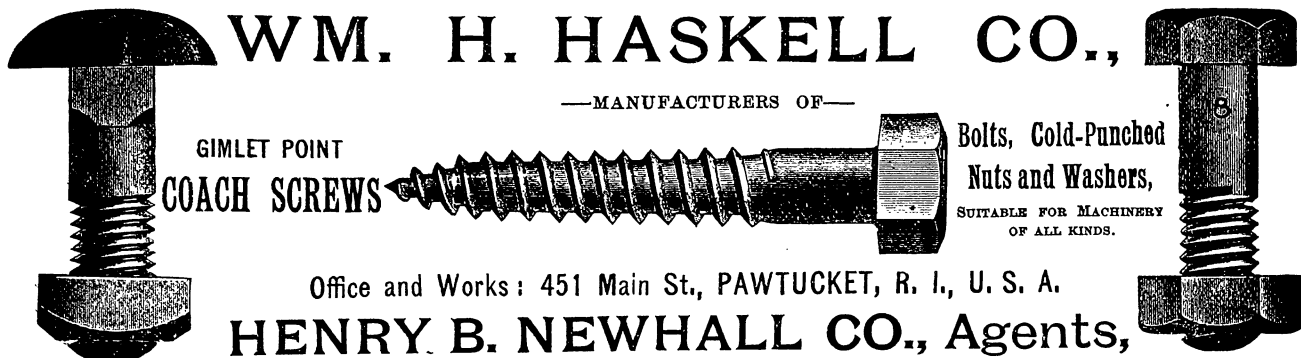


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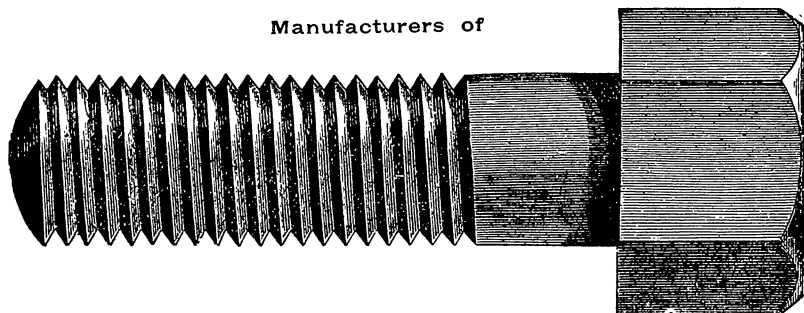
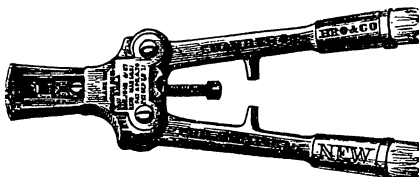
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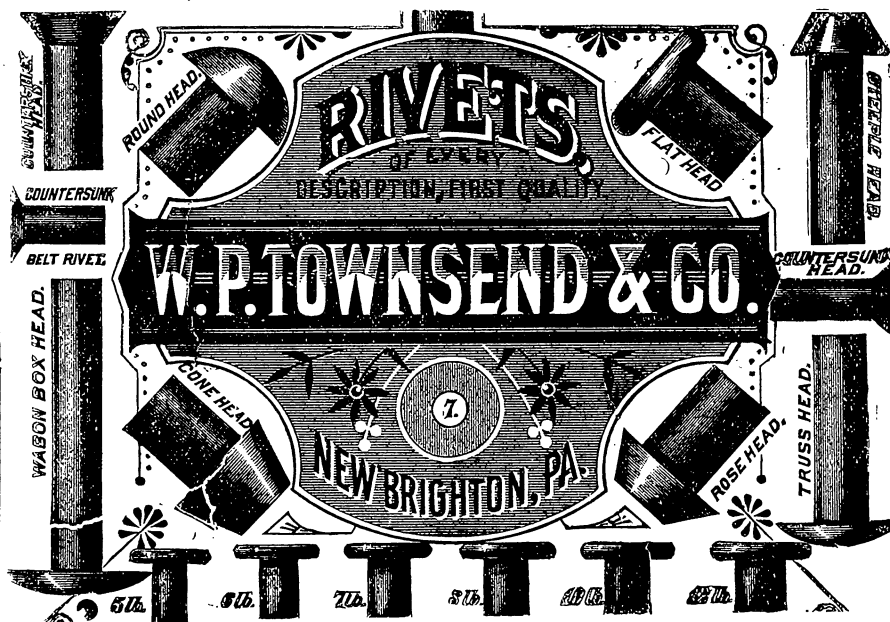
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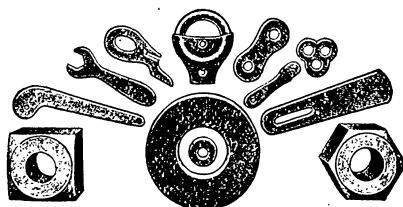
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Moore & White Co., Philadelphia, Pa.
- Friction Cone.**  
Evans Friction Cone Co., Boston, Mass.
- Furnaces, Foundry.**  
Byram & Co., Detroit, Mich.
- Galvanized Material.**  
Jersey City Galvanizing Co., 112 John St., N. Y.
- Gas Producers.**  
Wood, R. D. & Co., Philadelphia, Pa.
- Gas & Steam Fitters' Supplies.**  
Pancoast, Henry B. & Co., Phila., Pa.
- Gate Hinges.**  
Wrightsville Edw. Co., Wrightsville, Pa.
- Gear Cutters.**  
D. E. Whiton Mach. Co., New London, Conn.
- Gears.**  
Boston Gear Works, Boston, Mass.  
Lincoln Iron Works, Rutland, Vt.  
Poole, Robt. & Son Co., Baltimore, Md.  
U. S. Projectile Co., Brooklyn, N. Y.
- Glass Boards.**  
Canton Saw Co., Canton, O.
- Glass Cutters.**  
Monce, S. G., Bristol, Conn.
- Glue.**  
Baeder, Adamson & Co., Phila., Pa.  
Dodd, A. W. & Co., Gloucester, Mass.  
Russia Cement Co., Gloucester, Mass.
- Grass Catchers.**  
Supplee Hardware Co., Phila., Pa.
- Grinding and Polishing Machines.**  
Herrick & Cowell, New Haven, Conn.  
Norton Emery Wheel Co., Worcester, Mass.
- Grinding Mills.**  
Foos Mfg. Co., Springfield, O.
- Grindstone Dressing Machinery.**  
Blake & Johnson, Waterbury, Conn.
- Grindstones.**  
Cleveland Stove Co., Cleveland, O.
- Gun Implements.**  
Union Hdw. Co., Torrington, Conn.
- Gunpowder, Makers of.**  
Lafin & Rand Powder Co., 29 Murray St., N. Y.
- Hammocks.**  
Eustis, Jas. W. Co., Boston, Mass.
- Handles.**  
Cleveland Wood Turning Co., Cleveland, O.
- Hangers, Door.**  
Chicago Spring Butt Co., Chicago, Ill.  
Coburn Trolley Track Mfg. Co., Holyoke, Mass.  
Lane Bros., Poughkeepsie, N. Y.
- Hardware Comm'n Merchants.**  
Graham, John H. & Co., 111 Chambers St., New York.  
Jacobus, W. H., 90 Chambers, N. Y.
- Hardware Jobbers.**  
White, Van Glahn & Co., 15 17 Chatham Square, N. Y.
- Hardware Manufacturers.**  
Stearns, E. C. & Co., Syracuse, N. Y.  
Streeter, N. R. & Co., Groton, N. Y.  
Union Mfg. Co., 103 Chambers, N. Y.  
Yule & Towne Mfg. Co., Stamford Conn.
- Hardware Mfrs.' Agents.**  
Bingham, W. Co., Cleveland, O.  
Clarke, Thomas, St. John, N. B.  
Graham, John H. & Co., 113 Chambers.  
Sickles, Sweet & Lyon, 35 Barclay, N. Y.
- Hardware Specialties.**  
Acme Shear Co., Bridgeport, Conn.  
Berger Bros., Philadelphia, Pa.  
Bourke Mfg. Co., Youngstown, O.  
Clark Mfg. Co., Buffalo, N. Y.  
Enterprise Mfg. Co., Philadelphia, Pa.  
Ette & Henger Mfg. Co., St. Louis, Mo.  
Gwinner Mfg. Co., Hamilton, O.  
Johnson, S. C., Racine, Wis.
- Harness Snaps.**  
Covert Mfg. Co., West Troy, N. Y.  
Covert's Saddlery Wks., Farmer, N. Y.  
Fitch, W. & E. T., New Haven, Conn.
- Hog Rings and Ringers.**  
Oakes & Irwin, Decatur, Ill.
- Hoisting Machines.**  
Box, Alfred & Co., 314 Green, Phila.  
Brown Holsting & Conveying Mch. Co., Cleveland, Ohio.  
Fulton Iron & Engine Wks., Detroit, Mich.  
Harrington, E. Son & Co., Phila.  
Lane Bros., Poughkeepsie, N. Y.  
Lidgerwood Mfg. Co., 98 Liberty, N. Y.  
Lincoln Iron Works, Rutland, Vt.  
McCoy, Jos. F. & Co., 20 Warren St.  
Maris & Beekley, Philadelphia.  
Moore Mfg. & Fdy. Co., Milwaukee, Wis.  
Morse, Williams & Co., Phila.  
Sellers, Wm. & Co., Phila. and N. Y.  
Speldel, J. G., Reading, Pa.  
Yale & Towne Mfg. Co., Stamford, Ct.
- Hollow Ware.**  
Avery Stamping Co., Cleveland, O.  
Bronson Supply Co., Cleveland, Ohio.  
Cleveland Stamping & Tool Co., Cleveland, O.  
Stuart & Peterson Co., Phila., Pa.
- Horse Nails, Makers of.**  
Capewell Horse Nail Co., Hartford, Conn.  
National Horse Nail Co., Vergennes, Vt.  
Putnam Nail Co., Neponset, Boston, Mass.
- Horse and Mule Shoes, Makers of.**  
Bryden Horse Shoe Co., Catsaqua, Pa.  
Burden Iron Co., Troy, N. Y.  
Crescent Horse Shoe & Iron Co., Max Meadows, Va.  
Diamond State Iron Co., Wilmington, Del.  
Old Dominion Iron & Nail Works Co., Richmond, Va.  
Phoenix Horse Shoe Co., Poughkeepsie, N. Y.  
Rhode Island Perkins Horse Shoe Co., Providence.  
Shoenberger & Co., Pittsburgh, Pa.  
Standard Horse Shoe Co., Boston, Mass.
- Hose Menders.**  
Hudson, C. E. & Co., Leominster, Mass.
- Hose.**  
Cleveland Rubber Works, Cleveland, O.  
N. Y. Belding & Packing Co., Ltd., 15 Park Row, N. Y.
- Hydrants, &c.**  
McLean, John, 296 & 298 Monroe, N. Y.
- Hydraulic Forging.**  
U. S. Projectile Co., Brooklyn, N. Y.
- Hydraulic Jacks.**  
Dudgeon, Richard, 24 Columbia, N. Y.  
McCoy, Jos. F. Co., 20 Warren St., N. Y.
- Ice Cream Freezers.**  
North Bros. Mfg. Co., Phila., Pa.  
Packer, C. W., Philadelphia, Pa.  
White Mountain Freezer Co., Nashua, N. H.
- Injectors.**  
Bynon-Evans Mfg. Co., Philadelphia, Pa.  
Jenkins Bros., New York.  
Sherwood Mfg. Co., Buffalo, N. Y.
- Insurance, Boiler.**  
Hartford Steam Boiler Inspection & Insurance Co., Hartford, Conn.
- Iron and Steel, Swedish.**  
Lundberg, Gustaf, Boston, Mass.  
Alline, A. & Co., 1 Broadway, N. Y.
- Iron Commission Brokers.**  
Butze, Adolph, St. Louis, Mo.  
Corning, Edw. & Co., 29 B'way, N. Y.  
Cotton, Barclay W. & Co., Phila.  
Etting, Edw. J., Philadelphia.  
Hogan, John L. & Co., Philadelphia, Pa.  
Hoffman, J. W. & Co., Philadelphia.  
Levis, Henry & Co., Philadelphia.  
Keeley, Jerome & Co., Philadelphia.  
Lea, J. Tatnall & Co., Philadelphia.  
Mohr, J. J., 430 Walnut, Philadelphia.  
Pilling & Crane, Philadelphia, Pa.  
Wister, L. & R. & Co., Phila., Pa.
- Iron Ore.**  
Samuel, Frank, Philadelphia, Pa.
- Iron, Merchants.**  
Barns, C. K. & Co., Philadelphia, Pa.  
Borden & Lovell, 70 West, N. Y.  
Bussnutt & Canliffe, Philadelphia.  
Corning, Edw. & Co., 29 B'way, N. Y.  
Cox, Justice, Jr., Philadelphia.  
Cotton, Barclay W. & Co., Phila.  
Hoffman, J. W. & Co., Philadelphia.  
Leonard, J., 440 West St., N. Y.  
Nicolls, Wheeler & Co., Philadelphia.  
Ogden & Wallace, 577 to 583 Green-wich St., N. Y.  
Pierson & Co., 29 Broadway, N. Y.  
Thomson, W. H. & Co., Phila., Pa.  
Wallace, Wm. H. & Co., 66 B'way, N. Y.  
Whitney, A. R. & Co., 17 B'way, N. Y.  
Wilson, E. H. & Co., Philadelphia.
- Iron, Importers.**  
Abbott, Wheelock & Co., N. Y. and Albany, N. Y.  
Lundberg, Gustaf, Boston, Mass.
- Iron, Sheet, Manufacturers of.**  
Cambridge Iron & Steel Co., Cambridge, Ohio.  
W. Dewees Wood Co., Lim., McKeesport, Pa.
- Ironwork, Ornamental.**  
Barnum, E. T., Detroit, Mich.  
Champion Iron Co., Kenton, O.  
Ludlow-Saylor Wire Co., St. Louis, Mo.  
The Van Dorn Iron Works Co., Cleveland, O.
- Juice Extractors.**  
Sterling Aluminum Co., Brooklyn, N. Y.
- Keys.**  
Wollensak, J. F., Chicago, Ill.
- Ladies.**  
Whiting Fdy. Equipment Co., Chicago, Ill.
- Lamps.**  
Standard Lighting Co., Cleveland, O.
- Lanterns.**  
Rochester Lamp Co., 42 Park Place, New York.  
Steam Gauge & Lantern Co., Syracuse, N. Y.
- Lathes.**  
Dietz, Schumacher & Co., Cincinnati, O.  
Draper Machine Tool Co., Worcester, Mass.  
Harrington, E. Son & Co., Phila., Pa.  
Johnson, Israel H., Jr. & Co., Philadelphia, Pa.  
New Haven Mfg. Co., New Haven, Conn.  
Sebastian Lathe Co., Cincinnati, O.  
Seneca Falls Mfg. Co., Seneca Falls, N. Y.
- Lathing, Expanded Meta.**  
Chess Bros., Pittsburgh, Pa.
- Lathing, Wire.**  
Clinton Wire Cloth Co., Clinton, Mass.  
N. J. Wire Cloth Co., Trenton, N. J.  
Wright & Colton Wire Cloth Co., Worcester, Mass.
- Lawn Mowers.**  
Anderson, F. S. & Co., Richmond Ind.  
Blair Mfg. Co., Springfield, Mass.  
Chadborn & Coldwell Mfg. Co., Newburgh, N. Y.  
Coldwell Lawn Mower Co., Newburgh, N. Y.  
Dille & McGuire Mfg. Co., Richmond, Ind.  
Enterprise Mfg. Co., Philadelphia, Pa.  
F. & N. Mfg. Co., Richmond, Ind.  
Henley, M. C., Richmond, Ind.  
Supplee Hdw. Co., Phila., Pa.
- Lawn Rakes.**  
Gibbs Mfg. Co., Canton, Ohio.  
Kohler, F. E. & Co., Canton, O.
- Lawn Sprinklers.**  
Blair Mfg. Co., Springfield, Mass.  
Enterprise Mfg. Co., Phila., Pa.  
Ette & Henger Mfg. Co., St. Louis, Mo.  
Graham, John H. & Co., 113 Chambers Street, N. Y.  
McGowan, John H. Co., Cincinnati, O.  
Portland Lawn Sprinkler Co., Portland, Me.
- Letters and Figures, Metallic.**  
White, A. A. & Co., Providence, R. I.
- Letters, Paper.**  
Tablet & Ticket Co., Chicago, Ill.
- Levels.**  
Richardson, C. F. & Son, Athol, Mass.
- Locks and Knobs, Manufacturers of.**  
Dietz, A. E., 97 Chambers, N. Y.  
Independent Electric Co., Chicago, Ill.  
Reading Hdw. Co., Reading, Pa.  
Smith & Egge Mfg. Co., Bridgeport, Conn.  
Yale & Towne Mfg. Co., Stamford, Conn.
- Lubricants.**  
Dixon, Jos., Crucible Co., Jersey City, N. J.
- Machinery.**  
Am. Tool Works, Cleveland, Ohio.  
Ayer, H. C. & Gleason Co., Phila., Pa.  
Barnes, W. F. & John, Rockford, Ill.  
Bement, Miles & Co., Philadelphia, Pa.  
Bigelow, C. E., 45 Dey, N. Y.  
Bisnal & Keeler Mfg. Co., St. Louis.  
Bliss, E. W. Co., Brooklyn, N. Y.  
Bridgeport Mch. Tool Works, Bridgeport, Conn.  
Briggs, Marvin, 12 Broadway, N. Y.  
Carlin's Sons, Thos., Allegheny, Pa.  
Clapp, Geo. M., agt., 74 Cortlandt, N. Y.  
Detrick & Harvey Mch. Co., Baltimore, Md.  
Dietz, Schumacher & Co., Cincinnati, Ohio.  
Fitchburg Mch. Works, Fitchburg, Mass.  
Garvin Mch. Co., Lait & Canal Sts.  
Gould & Eberhardt, Newark, N. J.  
Hamilton Mch. Tool Co., Hamilton, O.  
Harrington, E. Son & Co., Phila., Pa.  
Henderer, A., Wilmington, Del.  
Hendy Machine Co., Torrington, Ct.  
Hill, Clarke & Co., Boston, Mass.  
Howard & Morse, 45 Fulton St., N. Y.  
Hubert-Rogers Mch. Co., South Sudbury, Mass.  
Johnson, Israel H., Jr. & Co., Phila.  
Jones & Lamson Mch. Co., Springfield, Vt.  
Lodge & Davis Mch. Tool Co., Cincinnati, O.  
Lodge & Shipley Mch. Tool Co., Cincinnati, O.  
McCabe, J. J., 68 Cortlandt, N. Y.  
Mechanists' Supply Co., Rochester, N. Y.  
Manville, E. J., Mch. Co., Waterbury, Conn.  
Newark Mch. Tool Wks., Newark, N. J.  
New Haven Mfg. Co., New Haven, Ct.  
New York Machinery Depot, 178 Broadway, New York.  
Niles Tool Wks., 138 Liberty St., N. Y.  
Pittsburgh Mfg. Co., Pittsburgh, Pa.

- Place, Geo.**, 145 Broadway, N. Y.  
**Poole, Robt. & Son Co.**, Baltimore, Md.  
**Powell Planer Co.**, Worcester, Mass.  
**Prentiss Tool & Supply Co.**, N. Y.  
**Scranton Supply & Mchry. Co.**, Scranton, Pa.  
**Sellers, Wm. & Co.**, Phila.  
**Seyfer's Sons, L. F.**, Philadelphia, Pa.  
**Sigourney Tool Co.**, Hartford, Conn.  
**Steproe, J. & Co.**, Cincinnati, O.  
**Stow Flexible Shaft Co., Ltd.**, Phila.  
**Toomey, Frank**, Philadelphia, Pa.  
**Walker Mfg. Co.**, Cleveland, O.  
**Wetherill, Robert & Co.**, Chester, Pa.  
**Wilson, W. A.**, Rochester, N. Y.
- Machinery for Hardware Manufacturers.**  
 Adt. Jno. & Son, New Haven, Conn.
- Machine Knives.**  
**Loring, Coes & Co.**, Worcester, Mass.  
**Loyd, John**, 558-562 Water St., N. Y.  
**Simonds Mfg. Co.**, Fitchburg, Mass.  
**New Britain Hdw. Mfg. Co.**, New Britain, Conn.
- Machine Screws.**  
**Rubbel, Harvey**, Bridgeport, Ct.
- Machine Tools.—See Machinery.**
- Machine Work.**  
**Papping, J.**, 58th St. & 11th Ave., N. Y. City.
- Machinists Scales.**  
**Coffin & Leighton**, Syracuse, N. Y.  
**Starrett, L. S.**, Athol, Mass.
- Machinists' Tools and Supplies.**  
**King, J. M. & Co.**, Watford, N. Y.  
**Sellers, Wm. & Co., Inc.**, Phila.
- Manufacturing Sites.**  
**Harmon, T. H.**, Lock Haven, Pa.
- Measuring Tapes.**  
**Keuffel & Esser Co.**, N. Y.
- Meat Choppers.**  
**Clauss Shear Co.**, Fremont, Ohio.
- Mechanical Instruction.**  
 Correspondence School of Mechanics, Scranton, Pa.
- Metals.**  
**Fearing, Wm. S.**, 100 Chambers, N. Y.  
**Hendricks Bros.**, 49 Cliff, N. Y.
- Metal Brokers.**  
**American Metal Co.**, N. Y.
- Metallurgists.**  
**Britton, J.**, Blodgett, Phila., Pa.
- Mining Knives.**  
**Palmer Hdw. Mfg. Co.**, Troy, N. Y.
- Mine Lamps.**  
**Darby, Edw. & Sons**, Phila., Pa.  
**Leonard, B. E.**, Scranton, Pa.
- Mining Screens.**  
**Harrington & King Perforating Co.**, Chicago, Ill.  
**Howard & Morse**, 45 Fulton, N. Y.
- Models, Makers of.**  
**Franklin, H. H. Mfg. Co.**, Syracuse, N. Y.  
**Ideal Machine Works**, Hartford, Conn.
- Molding Sand.**  
**Obermayer, S. Co.**, Cincinnati, O.
- Money Drawers.**  
**Columbian Novelty Co.**, North East, Penna.  
**Sun Mfg. Co.**, Greenfield, Ohio.  
**Wadgel, Wooden Ware Wks.**, Greenfield, Ohio.
- Motors, Water and Electric.**  
**Bolgiano Mfg. Co.**, Baltimore, Md.  
**C. & C. Electric Co.**, 402 and 404 Greenwich St., N. Y.  
**Daliet, Thomas H. & Co.**, Phila., Pa.
- Nail Machinery.**  
**Pittsburgh Mfg. Co.**, Pittsburgh, Pa.
- Nail and Tack Pullers.**  
**Am. Specialty Co.**, Hartford, Conn.  
**Scranton & Co.**, New Haven, Conn.
- Nail Keg Stock.**  
**Crescent Mfg. Co.**, Detroit, Mich.
- Nails (Cut) and Spikes.**  
**Borden & Lovell**, 70 West, N. Y.  
**Pottstown Iron Co.**, Pottstown, Pa.  
**Riverside Iron Wks.**, Wheeling, W. Va.  
**Valley Steel Co.**, St. Louis, Mo.
- Nickel Plated Supplies.**  
**Eddy Electric Mfg. Co.**, Windsor, Conn.
- Nickel Platers' Supplies.**  
**Hanson & Van Winkle Co.**, Newark, N. J.  
**Zucker & Levett Chemical Co.**, 10 to 14 Grand St., N. Y.
- Nickel Plating.**  
**Rhodes, L. E. Co.**, Hartford, Conn.
- Norway Shapes, Rollers of.**  
**Rowland, William & Harvey**, Frankford, Philadelphia.
- Novelty Manufacturers.**  
**Franklin, H. H. Mfg.**, Syracuse, N. Y.  
**Ideal Machine Works**, Hartford, Conn.
- Nut Machines.**  
**Dunham Nut Co.**, Unionville, Ct.
- Nuts, Bolts, &c., Makers of.**  
**American Bolt Co.**, Lowell, Mass.  
**American Screw Co.**, Providence, R. I.  
**Blake & Johnson**, Waterbury, Conn.  
**Dunham Nut Co.**, Unionville, Conn.  
**Haskell, Wm. Co.**, Pawtucket, R. I.  
**Mt. Carmel Bolt Co.**, Mt. Carmel, Conn.  
**Pennsylvania Bolt & Nut Co.**, Lebanon, Pa.  
**Port Chester Bolt & Nut Co.**, Port Chester, N. Y.  
**Russell, Burdall & Ward**, Port Chester, N. Y.  
**Sternbergh, J. H. & Son**, Reading, Pa.  
**Wilson, J. Fred.**, Worcester, Mass.  
**Wm. H. Haskell Co.**, Pawtucket, R. I.
- Oil Cups and Lubricators.**  
**Sherwood Mfg. Co.**, Buffalo, N. Y.
- Oilers.**  
**Wilmot & Hobbs Mfg. Co.**, Bridgeport, Conn.
- Oil Stones.**  
**Pike Mfg. Co.**, Pike Station, N. H.
- Ores.**  
**Wister, Francis**, Philadelphia, Pa.
- Ox Shoes.**  
**Scranton Forging Co.**, Scranton, Pa.
- Packing.**  
**Morrison, Robert**, St. Louis, Mo.  
**N. Y. Belting & Packing Co., Ltd.**, N. Y.
- Padlocks.**  
**Ames Sword Co.**, Chicopee, Mass.  
**Fraim, E. T.**, Lancaster, Pa.  
**Independent Electric Co.**, Chicago, Ill.  
**Wolf, W. & L.**, Phila., Pa.
- P. ils.**  
**Richmond Cedar Wks.**, Richmond, Va.
- Paint.**  
**Garry Iron & Steel Roofing Co.**, Cleveland, O.
- Paint Burners.**  
**Dangler Stove & Mfg. Co.**, Cleveland, Ohio.
- Paint Cans.**  
**Wilmot & Hobbs Mfg. Co.**, Bridgeport, Conn.
- Pants Stretcher.**  
**Covert Mfg. Co.**, West Troy, N. Y.
- Patent Solicitors.**  
**Butler, C. N.**, Phila., Pa.  
**Jenner, H. W. T.**, Washington, D. C.  
**Howson & Howson**, Philadelphia and Washington  
**Stocking, E. B.**, Washington, D. C.
- Pattern Letters.**  
**Wells, Heber**, 157 William St., N. Y.
- Perforated Metal.**  
**Clinton Wire Cloth Co.**, Clinton, Mass.  
**Harrington & King Perforating Co.**, Chicago, Ill.  
**Hendrick Mfg. Co., Ltd.**, Carbondale, Pa.
- Phosphor Bronze.**  
**Phosphor Bronze Smelting Co.**, Limited, Philadelphia.
- Phosphor Tin.**  
**Crescent Phosphorized Metal Co.**, Philadelphia, Pa.  
**Halk & Naumann**, 516 Pearl, N. Y.
- Picks and Mattocks.**  
**Plumb, Fayette R.**, Philadelphia, Pa.
- Pig Iron.**  
**Boston, C. B. & Co.**, Philadelphia, Pa.  
**Montour Iron & Steel Co.**, Danville, Pa.  
**Naylor & Co.**, 45 Wall, N. Y.  
**Pilling & Crane**, Philadelphia, Pa.  
**Samuel, Frank**, Philadelphia, Pa.
- Pig Iron Storage.**  
**Am. Pig Iron Storage Warrant Co.**, 44 Wall, N. Y.
- Pile Drivers.**  
**Vulcan Iron Works**, Chicago, Ill.
- Pipe, Bent.**  
**National Pipe Bending Co.**, New Haven, Conn.
- Pipe Cutting and Threading Machines.**  
**Armstrong Mfg. Co.**, Bridgeport, Conn.  
**Bigall & Keeler Mfg. Co.**, St. Louis, Mo.  
**Detrick & Harvey Mch. Co.**, Baltimore, Md.  
**Merrill Mfg. Co.**, Toledo, O.  
**Pancoast, Henry B. & Co.**, Phila.  
**Saunders Sons, D.**, Yonkers, N. Y.  
**Walworth Mfg. Co.**, Boston, Mass.
- Pipe Grips.**  
**Prentiss Vise Co.**, 44 Barclay, N. Y.
- Pipes, Fittings, &c., Makers of.**  
**McNab & Harlin Mfg. Co.**, N. Y.
- Pipe, Water and Gas, Makers of.**  
**Donaldson Iron Co.**, Emaus, Pa.  
**Riverside Iron Works**, Wheeling, W. Va.  
**Wood, R. D. & Co.**, Philadelphia, Pa.
- Plane Irons, Manufacturers of.**  
**Buck Bros.**, Millbury, Mass.  
**Buck, Chas.**, Millbury, Mass.
- Planers.**  
**Detrick & Harvey Mch. Co.**, Baltimore, Md.  
**New Haven Mfg. Co.**, New Haven, Conn.  
**Powell Planer Co.**, Worcester, Mass.  
**Wilson, W. A.**, Worcester, Mass.
- Planes, Manufacturers of.**  
**Stanley Rule & Level Co.**, N. Y.
- Plated Ware.**  
**Boardman, L. & Son**, New Haddam, Ct.  
**Holmes & Edwards Silver Co.**, Bridgeport, Conn.  
**Rogers, Wm. Mfg. Co.**, Hartford, Ct.
- Plate, Iron and Steel, Mfrs. of.**  
**Atna-Standard Iron & Steel Co.**, Bridgeport, O.  
**Lukens Iron & Steel Co.**, Coatesville, Pa.  
**Mahoning Valley Iron Co.**, Youngstown, Ohio.  
**Moorhead-McLean Co.**, Pittsburgh, Pa.  
**McIlvaine & Sons**, Reading, Pa.  
**Pottstown Iron Co.**, Pottstown, Pa.  
**Pottsville Iron & Steel Co.**, Pottsville, Pa.  
**Singer, Nimick & Co.**, Pittsburgh, Pa.  
**The Mahoning Valley Iron Co.**, Youngstown, O.  
**Wood, Alan Co.**, Philadelphia.
- Plating, Nickel, Brass and Silver.**  
**Wilmot & Hobbs Mfg. Co.**, Bridgeport, Conn.
- Polishing Machines.**  
**Watson & Stillman**, 204 E. 43d, N. Y.
- Post Hole Diggers.**  
**Gibbs Mfg. Co.**, Canton, Ohio.  
**Kohler, F. E. & Co.**, Canton, O.
- Poultry Netings.**  
**Armstrong, E. T.**, Detroit, Mich.  
**Gilbert & Bennett Mfg. Co.**, 42 Cliff St., N. Y.  
**N. J. Wire Cloth Co.**, Trenton, N. J.  
**"Silver Finish."**  
**Tyler Wire Works Co.**, W. S., Cleveland, Ohio.  
**Wright & Colton Wire Cloth Co.**, Worcester, Mass.
- Powder.**  
**Ames & Rand Powder Co.**, 29 Murray, New York Powder Co., 62 Liberty St., N. Y.
- Power Hack Saws.**  
**Millers Falls Co.**, 93 Reade St., N. Y.
- Power Hammers.**  
**Dieneit & Eisenhardt**, Philadelphia.  
**Dupont Mfg. Co.**, St. Johnsbury, Vt.  
**Jenkins & Lingle**, Bellefonte, Pa.  
**Miner & Peck Mfg. Co.**, New Haven, Conn.  
**Scranton & Co.**, New Haven, Conn.
- Power Transmitting Machinery.**  
**Dodge Mfg. Co.**, Mishawaka, Ind.
- Presses, Dies, &c.**  
**E. W. Bliss Co.**, Brooklyn, N. Y.  
**Crosby, G. A. & Co.**, Chicago, Ill.  
**Ferracute Mch. Co.**, Bridgeport, N. J.  
**Stark Mch. & Tool Co.**, Buffalo, N. Y.  
**Stiles & Parker Press Co.**, Brooklyn, N. Y.  
**Waterbury Mch. Co.**, Waterbury, Ct.
- Presses, Power, Makers of.**  
**Bliss, E. W. Co.**, Brooklyn, N. Y.  
**Manville, E. J. Mch. Co.**, Waterbury, Ct.  
**Stark Mch. & Tool Co.**, Buffalo, N. Y.  
**Waterbury Farrel Foundry & Machine Co.**, Waterbury, Conn.
- Printers.**  
**Griffith, Axtell & Cady Co.**, Holyoke, Mass.
- Pruning Knives.**  
**Gibbs Mfg. Co.**, Canton, O.
- Pulleys.**  
**Brown, A. & F.**, 17 Day St., N. Y.  
**Dodge Mfg. Co.**, Mishawaka, Ind.  
**Keystone Clutch Mch. Wks.**, Phila., Pa.  
**Reeves Pulley Co.**, Columbus, Ind.
- Pulverizing Mills.**  
**Bradley Fertilizer Co.**, Boston, Mass.
- Pumping Machinery.**  
**Dean Bros. Steam Pump Works**, Indianapolis, Ind.  
**Goulds Mfg. Co.**, Seneca Falls, N. Y.  
**Hooker-Colville Steam Pump Co.**, St. Louis, Mo.  
**Lucas, C. & Co.**, Greenville, Ohio.  
**McGowan, J. H. & Co.**, Cincinnati, O.  
**Maslin, J. & Son**, Jersey City, N. J.  
**Norwalk Iron Works Co.**, So. Norwalk, Conn.  
**Southwark Fdy. & Mch. Co.**, Phila., Pa.  
**Valley Pump Works**, Easthampton, Mass.  
**Worthington, Henry R.**, 86 and 88 Liberty St., N. Y.
- Pumps, Makers of.**  
**Bellevue Pump Co.**, Bellevue, Iowa.  
**Deming Co.**, Salem, O.  
**Douglas, W. & B.**, Middletown, Conn.  
**Goulds Mfg. Co.**, Seneca Falls, N. Y.  
**Myers, F. E. & Bro.**, Ashland, O.
- Punches.**  
**Richards, I. P.**, Providence, R. I.  
**Wells & Root Punch & Shear Co.**, Cincinnati, Ohio.
- Punches and Shears, Hand and Power.**  
**E. W. Bliss Co.**, Brooklyn, N. Y.  
**Crosby, G. A. & Co.**, Chicago, Ill.  
**Ferracute Mch. Co.**, Bridgeport, N. J.  
**Henderer, A. L.**, Wilmington, Del.  
**Stark Mch. & Tool Co.**, Buffalo, N. Y.  
**Stiles & Parker Press Co.**, Brooklyn, N. Y.  
**Waterbury Farrel Foundry & Machine Co.**, Waterbury, Conn.  
**Watson & Stillman**, 204 E. 43d, N. Y.
- Rails, Old and New.**  
**Perry, W. H. & Co.**, Providence, R. I.
- Rat and Mouse Traps.**  
**Estate, W. S.**, 65 Fulton, N. Y.
- Razor Guard.**  
**Murphy, P. D.**, Lockport, N. Y.
- Razor Sharpener.**  
**Dane, Stoddard & Kendall**, Boston, Mass.
- Razors, Manufacturers of.**  
**Excelsior Cutlery Co.**, Worcester, Mass.
- Razor Straps.**  
**Torrey J. R. & Co.**, Worcester, Mass.
- Keels.**  
**Hendryx, A. B. Co.**, New Haven, Conn.
- Refrigerator Door Fasteners.**  
**Conroy, P. J. & Co.**, Philadelphia.
- Rivets.**  
**Blake & Johnson**, Waterbury, Conn.  
**Boyer Rivet Co.**, Muncie, Ind.  
**Burden Iron Co.**, Troy, N. Y.  
**Clark & Cowles**, Plainville, Conn.  
**Cobb & Drew**, Plymouth, Mass.  
**New England Screw Co.**, Boston, Mass.  
**Sternbergh, J. H. & Son**, Reading, Pa.  
**Townsend, W. F. & Co.**, New Brighton, Pa.
- Riveting Machines.**  
**Adt. Jno. & Sons**, New Haven, Conn.
- Rolling Mill Machinery.**  
**Birmingham Iron Fdry.**, Birmingham, Ala.  
**Booth, The Lloyd Co.**, Youngstown, O.  
**Leechburg Foundry & Mch. Co.**, Pittsburgh, Pa.  
**Morgan Construction Co.**, Worcester, Mass.  
**Robinson-Rea Mfg. Co.**, Pittsburgh.  
**Totten & Hogg Iron and Steel Fdry. Co.**, Pittsburgh, Pa.  
**Tretbeway Mfg. Co.**, Pittsburgh, Pa.  
**Waterbury Farrel Foundry & Mch. Co.**, Waterbury, Conn.
- Rolls, Chilled, Sand and Steel.**  
**Birmingham Iron Foundry**, Birmingham, Conn.  
**Booth, The Lloyd Co.**, Youngstown, O.  
**East Chicago Fdry Co.**, Chicago, Ill.  
**Garrison, A. Fdry. Co.**, Pittsburgh, Pa.  
**Robinson-Rea Mfg. Co.**, Pittsburgh, Pa.  
**Seaman, Sleeth & Black**, Pittsburgh.  
**Totten & Hogg Iron and Steel Fdry. Co.**, Pittsburgh, Pa.
- Roofing.**  
**Berlin Iron Bridge Co.**, E. Berlin, Conn.  
**Cambridge Roofing Co.**, Cambridge, O.  
**Cincinnati Corrugating Co.**, Filga O.  
**Kanneberg Roofing Co.**, Canton, O.  
**N. Y. Iron Roofing & Corrugating Co.**, Jersey City, N. J.
- Rope and Web Goods.**  
**Covert Mfg. Co.**, West Troy, N. Y.  
**Covert's Saddlery Wks.**, Farmer, N. Y.
- Rope Wheels.**  
**Cresson, Geo. V. Co.**, Philadelphia, Pa.
- Rubber Goods.**  
**Canfield, H. O.**, Bridgeport, Conn.
- Rules, Manufacturers of.**  
**Keuffel & Esser Co.**, New York.  
**Stanley Rule & Level Co.**, 29 Chambers.
- Rust Preventive.**  
**Bridgeport Gun Implement Co.**, 315-316 Broadway, N. Y.
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**Streeter, N. R. & Co.**, Groton, N. Y.
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- Sand Paper.**  
**Baeder, Adamson & Co.**, Phila., Pa.
- Sash Balances.**  
**Caldwell Mfg. Co.**, Rochester, N. Y.  
**Pulman Sash Balance Co.**, Rochester, N. Y.
- Sash Cords and Chains.**  
**Morton, Thos.**, 45 Elizabeth, N. Y.  
**Ossavan Mills Co.**, Norwich, Conn.  
**Samson Cordage Works**, Boston, Mass.  
**Smith & Egge Mfg. Co.**, Bridgeport.
- Sash Locks.**  
**Columbian Sash & Door Lock Co.**, Wauseon, Ohio.
- Sash Pulleys.**  
**Palmer Hardware Mfg. Co.**, Troy, N. Y.
- Sash Weights.**  
**Brown, E. E. & Co.**, Philadelphia, Pa.  
**Norton Bros.**, Chicago, Ill.
- Saw Filing Machines.**  
**Diston, Henry & Sons**, Philadelphia, Pa.
- Saws, Makers of.**  
**Dyer Mfg. Co.**, Boston, Mass.  
**Diston, Henry & Sons**, Phila., Pa.  
**National Saw Co.**, 96 Reade St., N. Y.  
**Simonds Mfg. Co.**, Fitchburg, Mass.
- Saw Vises.**  
**Seneca Falls Mfg. Co.**, Seneca Falls, N. Y.
- Saw Sets.**  
**Taintor Mfg. Co.**, 84-86 Chambers, N. Y.
- Scales, Manufacturers of.**  
**Buffalo Scale Co.**, Buffalo, N. Y.  
**Chatillon, John & Sons**, 85-89 Cliff, N. Y.
- Scrapers, Road.**  
**Am. Steel Scraper Co.**, Sydney, Ohio.  
**Sidney Steel Scraper Co.**, Sidney, O.
- Screen Door Braces.**  
**Clark, W. J. & Co.**, Salem, Ohio.
- Screens, Coal and Ore.**  
**Hendrick Mfg. Co., Ltd.**, Carbondale, Pa.
- Screw Cutting Machinery.**  
**Wells Bros. & Co.**, Greenfield, Mass.  
**Wiley & Russell Mfg. Co.**, Greenfield, Mass.
- Screw Drivers.**  
**Brown, R. H. & Co.**, New Haven, Conn.  
**Mayhew, H. H. Co.**, Shelburne Falls, Mass.
- Screw Plate and Pipe Cutter.**  
**Jarecki Mfg. Co.**, Erie, Pa.
- Screws, Makers of.**  
**American Screw Co.**, Providence, R. I.  
**Blake & Johnson**, Waterbury, Conn.  
**Wm. H. Haskell Co.**, Pawtucket.  
**Miles, F. S.**, 205 Quarry, Philadelphia.  
**New England Screw Co.**, Boston, Mass.  
**Reynolds & Co.**, New Haven, Conn.  
**Worcester Machine Screw Co.**, Worcester, Mass.
- Scroll Saws.**  
**Barnes, W. F. & John**, Rockford, Ill.  
**Seneca Falls Mfg. Co.**, Seneca Falls, N. Y.
- Seythe Stones and Whetstones.**  
**Pike Mfg. Co.**, Pike Station, N. H.  
**Cleveland Stone Co.**, Cleveland, O.
- Shade Hangers.**  
**South, W. A. Co.**, Salem, Mass.
- Shaft Coupling.**  
**Columbian Novelty Co.**, North East, Penna.
- Shafting, Makers of.**  
**Brown, A. & F.**, 17 Day St., N. Y.  
**Cresson, Geo. V. Co.**, Philadelphia, Pa.  
**Fairmount Mch. Co.**, Philadelphia, Pa.  
**Sellers, Wm. & Co., Inc.**, Phila.  
**Stow Mfg. Co.**, Binghamton, N. Y.
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**Decatur Shaft Support Co.**, Decatur, Ill.
- Shaped Iron and Steel, Manufacturers of.**  
**Atna-Standard Iron & Steel Co.**, Bridgeport, O.  
**East Chicago Fdry Co.**, Chicago, Ill.

- Allentown Rolling Mill, Allentown, Pa.**  
Lockhart Iron & Steel Co., Pittsburgh, Pa.
- Passaic Rolling Mill Co., Paterson, N.J.**  
Pottsville Iron & Steel Co., Pottsville, Pa.
- Roberts, A. & P. & Co., Phila., Pa.**  
The Phoenix Iron Co., Phila., Pa.
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- Sheet Iron and Steel, Manufacturers of.**  
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Cambridge Iron & Steel Co., Cambridge, Ohio.  
Jersey City Galvanizing Co., 112 John St., N. Y.  
Mahoning Valley Iron Co., Livingston, Ohio.  
Morehead-McCleane Co., Pittsburgh, Pa.  
Pierson & Co., 29 Broadway, N. Y.  
Singer, Nimick & Co., Ltd., Pittsburgh, Pa.  
The Mahoning Valley Iron Co., Youngstown, O.  
Alan Wood Co., Philadelphia.  
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- Sheet Zinc.**  
Mathiessen & Hegeler Zinc Co., La Salle, Ill.
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Union Show Case Co., Chicago, Ill.
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- Skates, Roller.**  
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Union Hardware Co., Torrington, Ct.
- Slag Machines.**  
Cambria Iron Co., Johnstown, Pa.
- Smelting Works.**  
Reeves, Paul S., 760 S. Broad, Phila.
- Soldering Coppers.**  
Clendenin Bros., Baltimore, Md.  
Covert Mfg. Co., West Troy, N. Y.
- Soldering Furnaces.**  
Burgess Soldering Furnace Co., Columbus, Ohio.
- Speaking Tubes.**  
Ostrander, W. R. & Co., 204 Fulton St. N. Y.  
Wollensak, J. F., Chicago, Ill.
- Spelter.**  
Mathiessen & Hegeler Zinc Co., La Salle, Ill.  
Missouri Metal Co., St. Louis, Mo.
- Spoons and Forks.**  
Boardman, L. & Son, New Haddam, Conn.  
Holmes & Edwards Silver Co., Bridgeport, Conn.  
Rogers, The Wm. Mfg. Co., Hartford, Conn.
- Sporting Goods.**  
Hartley & Graham, 313-315 B'way, N. Y.
- Springs.**  
Clark & Cowles, Plainville, Ct.  
Colled Wire Belting Co., Jersey City, N. J.  
Dunbar Bros., Bristol, Conn.  
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Morgan Spring Co., Worcester, Mass.  
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Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.
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Bommer Bros., Brooklyn, N. Y.  
Chicago Spring Butt Co., Chicago, Ill.  
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- Stamping Works.**  
Avery Stamping Co., Cleveland, O.  
Cleveland Stamping & Tool Co., Cleveland, O.
- Staples.**  
Cobb & Drew, Plymouth, Mass.  
Titchener, E. H. & Co., Binghamton, N. Y.
- Steam Gauges.**  
Bristol Co., Waterbury, Conn.
- Steam Hammers, &c., Makers of.**  
Dieltz & Eisenhardt, Philadelphia.  
Dudgeon, Richard, 24 Columbia Street, N. Y.  
Tretlow Mfg. Co., Pittsburgh, Pa.
- Steam Heating & Oil Separators.**  
Webster, Warren & Co., Camden, N. J.
- Steam Separators.**  
Harrison Safety Boiler Wks., Phila., Pa.  
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Superior Steel Co., Pittsburgh, Pa.  
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- Steel Figures and Alphabet.**  
Krogstad, W., 61 Fulton St., N. Y.
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Newton & Shipman, 83 John, N. Y.  
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Crecent Steel Co., Pittsburgh, Pa.  
Frankford Steel Co., Philadelphia.  
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.  
Hobson, Francis, Seaman & Co., 97 John St., N. Y.  
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.  
Kaiser, Ellison & Co., Sheffield, Eng.  
La Belle Steel Co., Pittsburgh, Pa.  
Lukens Iron & Steel Co., Coatesville, Pa.  
Morehead-McCleane Co., Pittsburgh, Pa.  
Moss, F. W., 83 John, N. Y.  
Pottsville Iron and Steel Co., Pottsville, Pa.  
Bowland, Wm. & Harvey, Frankford, Philadelphia.  
Singer, Nimick & Co., Pittsburgh, Pa.  
Superior Steel Co., St. Louis, Mo.  
Wordlaw, S. & Co., Sheffield, Eng.  
Wetherell Bros., 93 Liberty, N. Y.  
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Lindsay, Jas. G. & Co., Phila., Pa.  
Pierson & Co., 29 Broadway, N. Y.
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Cambria Iron Co., Johnstown, Pa.  
Montour Iron & Steel Co., Danville, Pa.  
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- Steel, Tool.**  
Frankford Steel Co., Philadelphia, Pa.  
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La Belle Steel Co., Pittsburgh, Pa.
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Bicycle Step Ladder Co., Chicago, Ill.  
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Morley Bros., Saginaw, Mich.
- Stocks and Dies.**  
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Oster Mfg. Co., Cleveland, O.  
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- Stove Pipe Thimbles.**  
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Standard Lighting Co., Cleveland, O.
- Stove Trucks.**  
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Wiley & Russell Mfg. Co., Greenfield, Mass.
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- Testing Machines.**  
Riehle Bros. Testing Mach. Co., Phila.
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- Thrust Collars.**  
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Mayhew, H. H. Co., Shelburne Falls, Mass.  
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Butts & Ordway, Boston, Mass.  
Champion Blower & Forge Co., Lancaster, Pa.  
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- Tools, Tinner's.**  
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- Tubes, Seamless Drawn Copper.**  
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- Wagon Jacks.**  
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- Washers.**  
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Sidney Steel Scraper Co., Sidney, O.  
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New Haven Wire Mfg. Co., New Haven, Conn.  
Salem Wire Nail Co., Salem, O.  
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Wetherell Bros., 93 Liberty St., N. Y.  
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- Wire Cloth.**  
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Clinton Wire Cloth Co., Clinton, Mass.  
Darby, Edward & Sons, Philadelphia.  
Ester, W. S., 65 Fulton, N. Y.  
Gilbert & Bennett Mfg. Co., 42 Cliff, N. Y.  
Howard & Morse, 45 Fulton, N. Y.  
Ludlow-Saylor Wire Co., St. Louis, Mo.  
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Ludlow-Saylor Wire Co., St. Louis.  
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Scheeler & Sons, Buffalo, N. Y.  
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- Wire Machinery.**  
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- Wire Straightening and Cutting Machinery.**  
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Salem Wire Nail Co., Salem, O.  
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New Castle Wire Nail Co., New Castle, Pa.  
Washburn & Moen Mfg. Co., Worcester, Mass.  
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Wolff, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.
- Wire Rope, Iron and Steel, Makers.**  
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Washburn & Moen Mfg. Co., Worcester, Mass.
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Walworth Mfg. Co., Boston, Mass.  
Williams, J. H., Brooklyn, N. Y.
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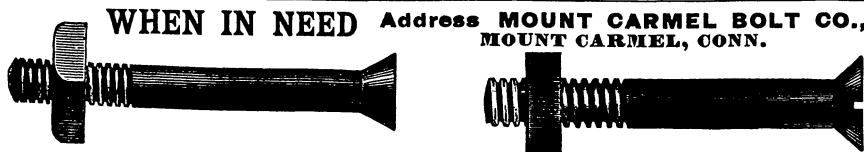
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Adt, John & Son.....	38	Brown Holsting & Conveying Mch.Co.	34	Crescent Phosphorized Metal Co....	3	Graham, John H. & Co.....	79
Adna-Standard Iron & Steel Co.....	19	Brown, R. H. & Co.....	58	Crescent Mfg. Co.....	8	Grand Crossing Tack Co.....	11
Aiken, Henry.....	24	Bryan Mfg. Co.....	92	Crescent Steel Co.....	15	Grand Rapids Cycle Co.....	73
Alexander Bros.....	35	Bryden Horse Shoe Co.....	87	Cresson, Geo. V. Co.....	47	Green, A. H.....	30
Allentown Hdw. Wks.....	28	Buck Bros.....	67	Croissant, M.....	79	Griffith, Axtell & Cady Co.....	59
Allentown Rolling Mills.....	25	Buck, Chas.....	67	Crosby, G. A. & Co.....	37	Gwinner Mfg. Co.....	83
Am. Bolt Co.....	95	Buckeye Mfg Co.....	29	Crown Smelting Co.....	3	Haight & Clark.....	26
Am. Metal Co.....	3	Buffalo Forge Co.....	104	Cushman Chuck Co.....	43	Halk & Naumann.....	3
Am. Pig Iron & Storage Warrant Co..	13	Buffalo Scale Co.....	90	Dallett, Thos. H. & Co.....	45	Halsey, Jas. T.....	43
Am. Screw Co.....	12	Burden Iron Co.....	87	Dame, Stoddard & Kendall.....	72	Halsey, W. S. & Co.....	23
American Specialty Co.....	67	Burgess Soldering Furnace Co.....	58	Dangler Stove & Mfg. Co.....	70	Hamilton Machine Tool Co.....	39
Am. Steel Scraper Co.....	92	Burke, P. F.....	89	Darby, Edw. & Sons.....	8	Hammer & Co.....	90
Am. Tool Co.....	68	Burr & Houston Co.....	22	Davis, I. B. & Son.....	30	Hanson & Van Winkle Co.....	27
American Tool Works.....	51	Bussenius & Cunliffe.....	51	Davis, W. P.....	51	Hardware Board of Trade.....	54
Ames Sword Co.....	84	Butler, C. N.....	6	Davol, John & Sons.....	2	Harrington, E., Son & Co.....	48
Amidon Tool Corporation.....	66	Butler Mfg. Co.....	61	Dean Bros. Steam Pump Works.....	33	Harrington & King Perforating Co..	10
Anderson, F. S. & Co.....	93	Butterfield & Co.....	43	Decatur Shaft Support Co.....	94	Harrington & Richardson Arms Co.	70
Ansonia Brass & Copper Co.....	2	Butts & Ordway.....	37	DeHaven Mfg. Co.....	74	Harris Mfg. Co.....	73
Arcade File Works.....	64	Butze, Adolph.....	54	Deitz, A. E.....	80	Harris, Wm. A. Steam Engine Co....	28
Arcade Malleable Iron Co.....	21	Byram & Co.....	24	Deming Co.....	60	Harrison Safety Boiler Wks.....	29
Arcade Mfg. Co.....	82	C. & C. Electric Co.....	27	Detrick & Harvey Machine Co.....	49	Hart Mfg. Co.....	43
Armstrong Bros. Tool Co.....	46	Caldwell Mfg. Co.....	84	Diamond Clamp & Flask Co.....	104	Hartford Steam Boiler Insp. and Ins.	30
Armstrong Mfg. Co.....	44	California Wire Works.....	6	Diamond State Iron Co.....	87	Hartley & Graham.....	1
Athol Machine Co.....	61	Cambria Iron Co.....	18&21	Dienelt & Elsenhardt.....	40	Haskell, Wm. H. Co.....	96
Atlas Mfg. Co.....	104	Cambridge Iron & Steel Co.....	14	Dille & McGuire Mfg. Co.....	94	Hazard Mfg. Co.....	6
Atlas Tack Corporation.....	11	Cambridge Roofing Co.....	14	Disston, Henry & Sons.....	63	Heinisch's R. Sons Co.....	67
Avery Stamping Co.....	74	Canfield, H. O.....	35	Dixon, Jos., Crucible Co.....	35	Henderer, A. L.....	40
Ayer, H. C. & Gleason Co.....	38	Canton Saw Co.....	41	Dodd, A. W. & Co.....	103	Henderson Bros.....	22
Babcock & Wilcox Co.....	32	Capewell Horse Nail Co.....	88	Dodge Mfg. Co.....	47	Hendey Machine Co.....	56
Baeder, Adamson & Co.....	58	Carbon Steel Co.....	19	Donaldson Iron Co.....	22	Hendricks Bros.....	2
Banker & White.....	65	Carlin's Sons, Thomas.....	51	Douglas, W. & B.....	60	Hendrick Mfg. Co., Ltd.....	7
Bardsley, J.....	90	Carpenter J. M. Tap & Die Co.....	103	Draper Machine Tool Co.....	51	Hendryx, A. B. Co.....	43
Barns, C. K. & Co.....	21	Cary Mfg. Co.....	74	Dudgeon, Richard.....	41	Henley, M. C.....	70&93
Barnes, W. F. & John.....	37	Chadborne & Coldwell Mfg. Co.....	94	Dunbar Bros.....	4	Herrick, J. A.....	25
Barnett, G. & H.....	65	Chambers Bros. Co.....	96	Dunham Nut Co.....	95	Herrick & Cowell.....	38
Barnum, E. T.....	10	Champion Blower & Forge Co.....	43	Durant, W. N.....	34	Hiertz, T. & Son.....	3
Bass Foundry & Machine Works.....	29	Champion Iron Co.....	7	Dwight Slate Machine Co.....	37	Higgaum Hdw. Co.....	59
Bay State Stamping Co.....	46	Chandler & Taylor Co.....	30	Eagle Anvil Works.....	64	Hill, Clarke & Co.....	52
Bellevue Pump Co.....	61	Chapman Valve Mfg. Co.....	28	Eagle Bicycle Mfg. Co.....	103	Hobson, F., Seaman & Co.....	17
Bement, Miles & Co.....	40	Chatillon, John & Sons.....	76	East Chicago Foundry Co.....	22	Hoffman, J. W. & Co.....	16
Bemis & Call Hardware & Tool Co....	90	Cheney, S. & Son.....	22	Eccles, Richard.....	85	Hogan, John L. & Co.....	16
Berger Bros.....	73	Chess Bros.....	22	Eddy Electric Mfg. Co.....	27	Hoggson & Pettis Mfg. Co.....	43
Berlin Iron Bridge Co.....	9	Chester Steel Casting Co.....	23	Enterprise Mfg. Co. of Pa.....	78	Hollands Mfg. Co.....	61
Bethlehem Iron Co.....	21	Chicago Fire Arms Co.....	72	Estey, W. S.....	6	Holmes & Edwards Silver Co.....	68
Bevin Bros. Mfg. Co.....	73	Chicago Spring Butt Co.....	83	Ette & Henger Mfg. Co.....	93	Hooker-Colville Steam Pump Co.....	52
Bickford Drill & Tool Co.....	39	Chrome Steel Works.....	18	Etting, Edw. J.....	16	Houston, C. B. & Co.....	16
Bicycle Step Ladder Co.....	78	Church, Isaac.....	96	Eureka Cast Steel Co.....	104	Howard Iron Works.....	65
Bigelow, C. R.....	52	Cincinnati Corrugating Co.....	10	Eustis, Jas. W. Co.....	81	Howard & Morse.....	7
Biggall & Keeler Mfg. Co.....	40	Claffen Mfg. Co.....	35	Evans-Friction Cone Co.....	3	Howson & Howson.....	6
Billings & Spencer Co.....	90	Clapp, E. D. Mfg. Co.....	86	Excelsior Cutlery Co.....	69	Hubbell, Harvey.....	95
Bingham, W. Co.....	73	Clapp, Geo. M.....	52	Eynon-Evans Mfg. Co.....	30	Hudson, C. E. & Co.....	85
Birmingham Iron Foundry.....	22	Clark, G. P.....	94	F. & N. Mfg. Co.....	34	Hurlbut-Rogers Mch. Co.....	39
Bissell, E. Son & Co.....	54	Clark & Cowles.....	5&52	Fairmount Machine Co.....	49	Hutchinson, F. S. Co.....	66
Black Mfg. Co.....	73	Clark, W. J. & Co.....	69	Fay, J. A. & Co.....	47	Huyett & Smith Mfg. Co.....	26
Blair Mfg. Co.....	93	Clark Mfg. Co.....	69	Fearling, Wm. S.....	2	Ideal Machine Works.....	50
Blake & Johnson.....	13	Clarke, Thomas.....	61	Ferrand, L. W. & Co.....	70	Ideal Mfg. Co.....	71
Bliss Co., E. W.....	36	Clauss Shear Co.....	68	Ferracuta Machine Co.....	38	Independent Electric Co.....	73
Boardman, L. & Son.....	67	Clendenin Bros.....	13	Fitch, W. & E. T.....	103	Indiana Wire Fence Co.....	7
Boker, Hermann & Co.....	17	Cleveland Block Co.....	91	Fitchburg Machine Works.....	37	Iowa Farming Tool Co.....	91
Bolgiano Mfg. Co.....	11	Cleveland City Forge & Iron Co....	1	Flagg, Stanley G. & Co.....	104	Jacobus, W. H.....	96
Bommer Bros.....	104	Cleveland Rubber Works.....	81	Flint & Co.....	19	Jarecki Mfg. Co.....	42
Bond Nail Co.....	13	Cleveland Stamping & Tool Co.....	80	Folding Paper Box Co.....	66	Jeffrey Mfg. Co.....	34
Boone, W. C. Mfg. Co.....	23	Cleveland Stone Co.....	46	Foos Mfg. Co.....	26	Jenkins Bros.....	1
Booth, The Lloyd Co.....	26	Cleveland Twist Drill Co.....	45	Fraim, E. T.....	84	Jenkins & Lingle.....	37
Borden & Lovell.....	13	Cleveland Wood Turning Co.....	70	Frankford Steel Co.....	18	Jenner, H. W. T.....	6
Borgner, Cyrus.....	20	Clinton Wire Cloth Co.....	8	Franklin, H. H. Mfg. Co.....	52	Jersey City Galvanizing Co.....	14
Boston Casting Co.....	3	Cobb & Drèw.....	7	Frost Thill Spring Co.....	89	Jessop, Wm. & Sons.....	17
Boston Gear Works.....	29	Coburn Trolley Track Mfg. Co.....	82	Fulton Iron & Engine Works.....	45	Johnson, I. H., Jr., & Co.....	48
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Bradlee & Co.....	15	Colled Wire Belting Co.....	82	Gartland Foundry Co.....	19	Kayser, Ellison & Co.....	17
Bradley Fertilizer Co.....	39	Colburn, A. M.....	43	Garvin Machine Co.....	52	Keeley, Jerome & Co.....	16
Brass Goods Mfg. Co.....	2	Colburn Electric Mfg. Co.....	28	Gautier Steel Department.....	14	Keene Mfg. Co.....	72
Bridgeport Gun Implement Co.....	72	Colby Wringer Co.....	76	Gaylord, F. L. Co.....	3	Kennedy, Julian.....	24
Bridgeport Mch. Tool Works.....	50&51	Coldwell Lawn Mower Co.....	95	Garry Iron & Steel Rfg. Co.....	10	Keuffel & Esser Co.....	61
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Bristol Co.....	1	Columbian Novelty Co.....	83	Gilbert & Bennett Mfg. Co.....	8	Keystone Clutch & Machine Works..	43
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Broderick & Bascem Rope Co.....	6	Continental Iron Works.....	29	Goodell, J. W. Co.....	68	King, J. M. & Co.....	65
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		Cotton, Barclay W. & Co.....	15				
		Covert Mfg. Co.....	89				
		Covert's Saddlery Works.....	57				
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		Cramp, Wm. & Sons S. & E. B Co....	3				

Kreischer, B. & Sons.....	26	New Haven Copper Co.....	2	Richards, I. P.....	103	Talcott, W. O.....	84
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Lafin & Rand Powder Co.....	22	N. J. Wire Cloth Co.....	8	Riehl Bros. Testing Machine Co.....	84	Taunton Wire Nail Co.....	14
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Lee, J. Tatnall & Co.....	20	N. Y. Iron Roofing & Corrugating Co.	10	Robinson-Rea Mfg. Co.....	23	Tod, Wm. & Co.....	29
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Leschen, A. & Sons Rope Co.....	6	Norton Emery Wheel Co.....	46	Salem Wire Nail Co.....	13	Trenton Iron Co.....	4
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Lovell, Jno. P. Arms Co.....	73	Ossawan Mills Co.....	103	Scott, Geo. M.....	37	Union Show Case Co.....	75
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Lucas, C. O. & Co.....	30	Ostrander Fire Brick Co.....	26	Scranton & Co.....	37	Valentine, M. D. & Bro. Co.....	26
Ludlow-Saylor Wire Co.....	7	Ostrander, W. R. & Co.....	59	Scranton Forging Co.....	87	Valley Pump Co.....	33
Lukens Iron & Steel Co.....	15	Otto Gas Engine Works.....	31	Scranton Supply & Machine Co.....	51	Valley Steel Co.....	1
Lundberg, Gustaf.....	18	Packer, C. W.....	57	Seaman, Sleeth & Black.....	22	Van Dorn Iron Works Co.....	7
Lunkenheimer Co.....	28	Palmer & De Mooy Fdry. Co.....	23	Sebastian Lathe Co.....	48	Van Wagoner & Williams Hdw. Co.	104
McCabe, J. J.....	51	Palmer Hardware Mfg. Co.....	58	Sellers, Wm. & Co.....	49	Vulcan Iron Works.....	26
McCaffrey File Co.....	65	Pancoast Henry B. & Co.....	42	Seneca Falls Mfg. Co.....	48 & 62	Waddell Wooden Ware Wks.....	77
McCallip Fence & Wire Works.....	6	Parker, Chas. Co.....	73	Sessions Foundry Co.....	23	Wals & Roos Punch & Shear Co.....	38
McClure & Amsler.....	25	Passaic Rolling Mill Co.....	21	Seyfert's Sons, L. F.....	51	Walker Mfg. Co.....	25
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McKay, Jas. & Co.....	15	Penna. Elevator Engineering Co.....	49	Sickels, Sweet & Lyon.....	6	Washburn & Moen Mfg. Co.....	4
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Main Belting Co.....	35	Phoenix Iron Co.....	15	Skinner Chuck Co.....	43	Webster, Warren & Co.....	28
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Mansfield, H. H.....	52	Pike Mfg. Co.....	66	Smith, J. D. Foundry Supply Co.....	23	Wetherell Bros.....	17 & 20
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Matthiessen & Hegeler Zinc Co.....	2	Pittsburgh Mfg. Co.....	35	Southark Foundry & Machine Co.....	28	White, L. & I. J. Co.....	87
Maurer, H. & Son.....	26	Pittsburgh Reduction Co.....	56	South, W. A. Co.....	76	White Mt. Freezer Co.....	57
Mayhew, H. H. Co.....	62	Place, Geo.....	51	Spedel & Roeper.....	49	White, Van Glahn & Co.....	66
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Miner & Peck Mfg. Co.....	40	Portland Lawn Sprinkler Co.....	93	Stark Mch. & Tool Co.....	38	Williamson, C. T. Wire Nov. Co.....	66
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Moore & White Co.....	47	Pullman Sash Balance Co.....	67	Sternbergh, J. H. & Son.....	96	Wire Goods Co.....	5
Moorhead-McCleane Co.....	20	Putnam Nail Co.....	88	Stevens, J. Arms & Tool Co.....	60	Wister, Francis.....	16
Morgan Construction Co.....	4	Quint, A. D.....	44	Steward & Romaine Mfg. Co., Ltd.....	95	Wister, L. & R. & Co.....	21
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Morse Twist Drill & Machine Co.....	45	Ranson Hardware Co.....	82	Storm Mfg. Co.....	60	Wood Alan & Co.....	16
Morse, Williams & Co.....	49	Reading Hardware Co.....	85	Stover Mfg. Co.....	84	Wood, R. D. & Co.....	23
Morton, Thos.....	90	Read, Wm. & Sons.....	103	Stow Flexible Shaft Co.....	45	Wood, W. Dewees Co.....	20
Moseley Iron Bridge & Roof Co.....	14	Reece, Edw. F.....	43	Stow Mfg. Co.....	45	Woodward & Rogers.....	39
Mount Carmel Bolt Co.....	103	Reeves, Paul S.....	104	Streeter, N. R. & Co.....	70	Worcester Mch. Screw Co.....	96
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National Horse Nail Co.....	89	Reynolds & Co.....	10	Sun Mfg. Co.....	77	Wrightsville Hardware Co.....	57
National Pipe Bending Co.....	31	R.I. Perkins Horse Shoe Co.....	87	Superior Steel Co.....	5	Wurster, F. W. & Co.....	104
National Saw Co.....	62	Rhodes, L. E. Co.....	50	Supplee Hardware Co.....	94	Wyman & Gordon.....	90
National Wringer Co.....	80	Rice Mfg. Co.....	23	Sweetser, W. A.....	21	Yale & Towne Mfg. Co.....	48&59
Newark Machine Tool Works.....	56	Richardson, C. F. & Son.....	62	Swindell, W. & Bros.....	24	Zucker & Levett Chem. Co.....	27
Newbury, Jay H.....	95			Taintor Mfg. Co.....	62		
New Castle Wire Nail Co.....	13			Tablet & Ticket Co.....	50		
New England Screw Co.....	95						

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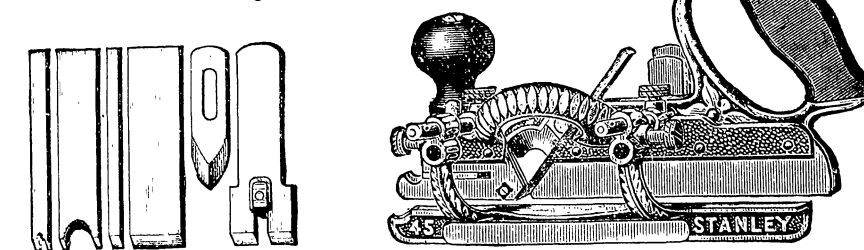
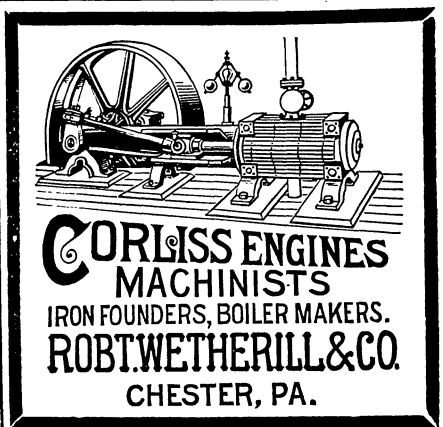
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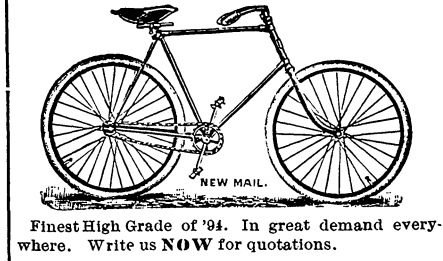
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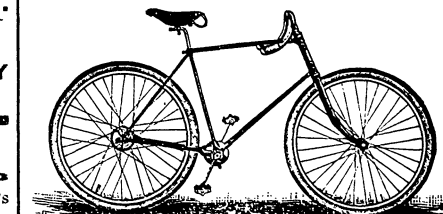


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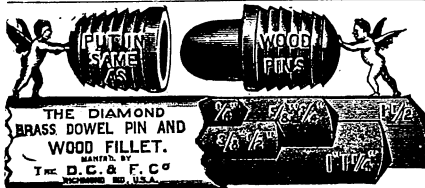
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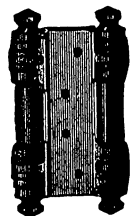
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# THE IRON AGE

THURSDAY JULY 19, 1894.

## Trolley Line Between New York and Philadelphia.

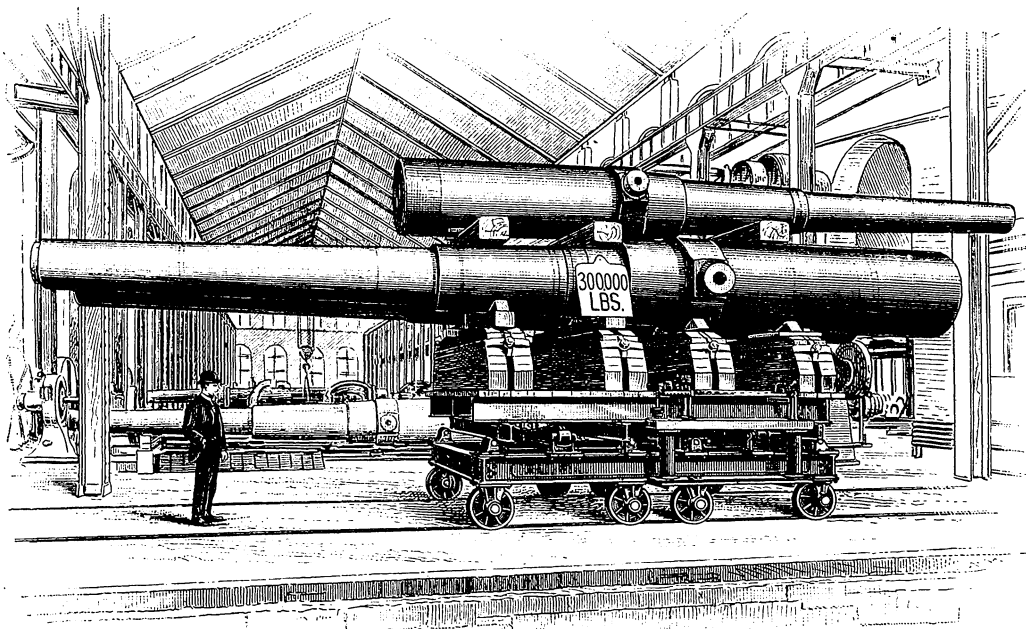
There was filed in the office of the New Jersey Secretary of State, on July 13, articles of incorporation for an important electrical railway corporation, with a capital stock of \$10,000,000. The scheme of the new company is the establishment of a vast trolley system connecting New York and Philadelphia, and absorbing all the existing trolley roads in Central New Jersey. The corporation, which will be known as the New York and Philadelphia Traction Company, will, it is said, control quite 1000 miles of track. The system will carry both passengers and freight, the latter by means of combination trains. Frank A. McGowan of Trenton is the

is stated, be begun at once at various points.

The New York *Herald* mentions that one of the interesting features of the scheme is the utilization of the water of the Delaware River for motor power. Frank A. McGowan is at the head of a syndicate that has secured partial right to use the falls of the Delaware at this point to furnish electrical heat, light and power for an area of 30 miles around Trenton. The plant is to be at Morrisville, Pa., just opposite this city. For a quarter of a century a scheme has been in contemplation to use the horse-power of the river, which is the strongest of any in the Eastern waterways. An old company secured the right to erect wing dams on the Pennsylvania side, where the current is the strongest. The dams were erected and still remain,

## A 300,000-Pound Arsenal Scale.

A portable platform scale has been designed and constructed by E. & T. Fairbanks & Co. of St. Johnsbury, Vt., and furnished by their agents, the Fairbanks Company of 311 Broadway, to the Watervliet Arsenal of West Troy, N. Y. The scale travels on eight wheels 20 inches in diameter and 6 inches face, arranged four on a side, as shown in the perspective view. These support the lower platform, which is a rectangular frame built up of 12-inch I-beams. Extending transversely across this frame are 8-inch I-beams which carry the weighing platform, which consists of two 12-inch I-beams placed one over each long side of the lower platform. The floor on these beams is



THREE HUNDRED THOUSAND POUND ARSENAL SCALE.

president of the concern, and the financial strength of the undertaking is stated to be unimpeachable, the directors including some of the best known business men of New York, New Jersey and Philadelphia. The direct line of the main stem will commence at Paterson, N. J., and pass through Upper Montclair, Montclair, Bloomfield, Orange, East and West Orange, South Orange, Maplewood, Wyoming, Springfield, Westfield, Fanwood and Netherwood to a connection with the present electrical railway system in Plainfield, and thence through Plainfield to Bound Brook. From Bound Brook the line will stretch to Trenton by way of Millston, Rocky Hill, Princeton and Lawrenceville. From Trenton the route to Philadelphia will lie through Morrisville, Bristol, Cornwells, Tacony, Holmesburg and Frankford. Branch lines will also run from Bound Brook to New Brunswick and Raritan, from Rahway to Elizabeth, from Trenton to Camden, and several other important offshoots will be built from the main stem. The work on these lines will, it

and this company have purchased the franchise, intending to utilize them in case it is impossible to get the Legislative sanction from Pennsylvania.

Among changes in the Canadian tariff announced last week are iron borings, which are placed on the free list.

The Pittsburgh office of the Washburn & Moen Mfg. Company has secured a contract from the Carnegie Steel Company, Limited, for what is claimed to be the largest electrical conductor ever manufactured. The dimensions are as follows: Diameter of the copper conductor  $1\frac{1}{2}$  inches; outside diameter, including the insulation,  $2\frac{1}{2}$  inches; capacity, 2,790,000 c.m.; length, 1610 feet. This cable is to be installed in the new building now being erected by the Carnegie Steel Company. In addition to the above cable the outfit calls for 50,000 feet of rubber covered wires for distributing the current from said cable throughout the entire building.

of 3-inch oak and measures 12 x 15 feet. Immediately over each wheel is a link, the opening in the bottom of which forms the fixed fulcrum for one of the scale levers, of which there are eight, four on each side. These levers are arranged in pairs. The free ends of each pair approach each other and are united to a lever extending half way across the frame. There are, therefore, four transverse levers. These levers are also arranged in pairs, and each pair joins a lever leading to the center of the platform. From the junction of these two levers extends a single lever to the weighing beam, as shown in Fig. 2. On the center bearing, or knife edge, of each of the eight primary levers rests one end of one of the 8 inch transverse I-beams, which carry the weighing platform proper. It will therefore be seen that the weight of the load is transmitted in an almost vertical direction to the four axes of the wheels. Oscillation of the platform in either horizontal direction is prevented, but there is perfect freedom of vertical motion.

The weighing beam, shown enlarged in Fig. 2, is of the peculiar type used only on the largest scales. The sliding poise B B' reads directly to the large units, each of which is 5000 pounds. A spring is provided which insures the accurate settling of the poise in the notch of the beam, and thus obviates all danger of error. On the poise is a subsidiary weighing beam, C, having its own smaller sliding weight, by which a reading to divisions of 10 pounds is obtained, by inspection, which can by the eye be still further divided if desired. This secondary beam acts upon the same principle as the micrometer gauge. The beam is graduated to weigh 200,000 pounds. For heavier weights the weight A

weighed. This shows perhaps better than any illustration we could offer the excellence of the design and the extreme skill exercised in its execution. This is the largest portable scale ever constructed.

#### Railway Statistics of the United States.

The sixth statistical report of the Interstate Commerce Commission for the fiscal year ending June 30, 1893, which has just been published, shows that the total mileage of railways in the United States on June 30, 1893, was 176,461, being an increase during the year of 4897 miles. Washington

52,187. The aggregate of property properly classified as railway capital was on June 30, 1893, \$10,506,235,410, which shows railway capital equal to \$63,421 per mile of line. The amount of investment in the railway securities increased during the year from \$1,391,457,053 to \$1,563,022,233, being an increase of \$171,565,180. The total of dividends paid was \$100,929,885. The total number of passengers carried during the year was 593,560,612. Passenger mileage during the same year was 14,229,101,084. The number of tons of freight reported by the railways was 745,119,482. Ton mileage was 93,588,111,833. Passenger train mileage was 335,618,770 and freight train mileage 508,719,506.

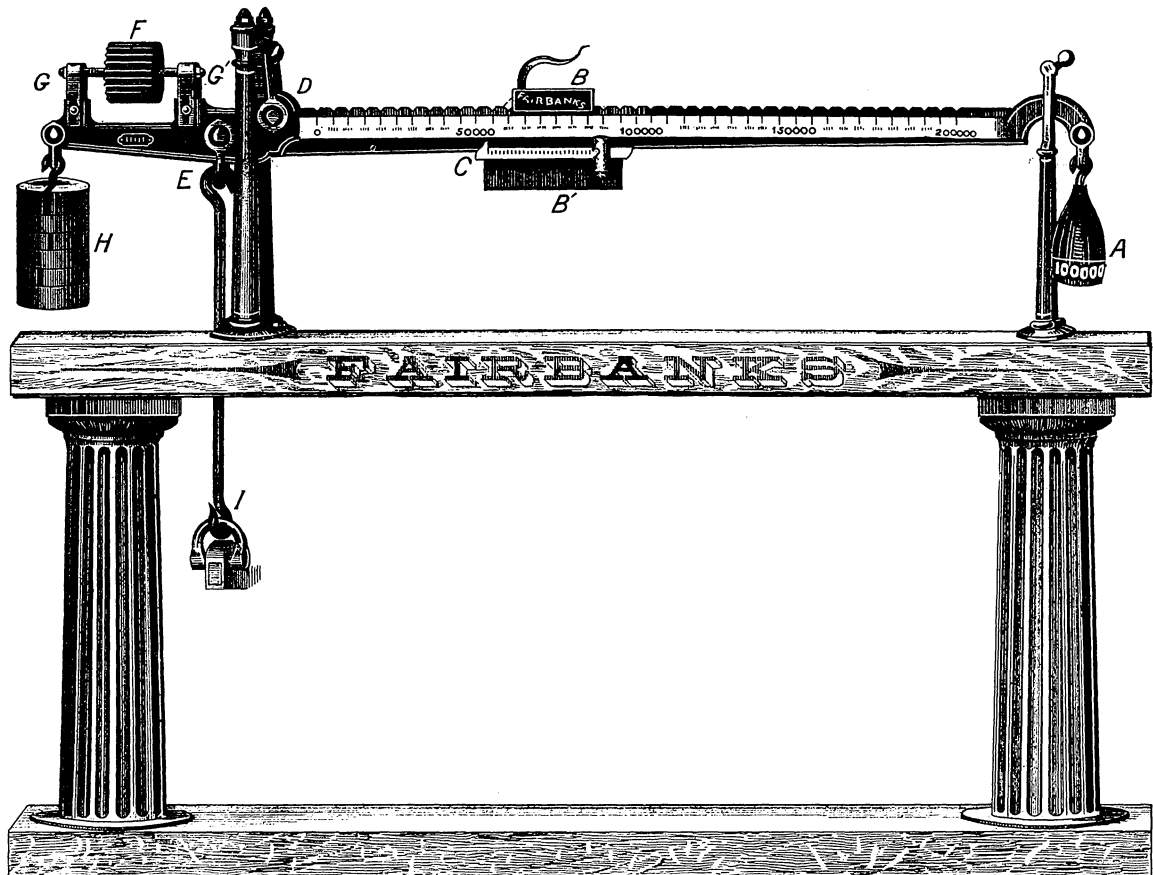


Fig. 2.—Enlarged View of the Scale Beam.

#### THREE HUNDRED THOUSAND POUND ARSENAL SCALE.

(100,000 pounds) is suspended from the end of the beam.

The weights H are provided in order to counterbalance any weight placed on the platform and which it is not desired to weigh, and to have the actual weighing begin at zero. The weight F is mounted upon a screw, G G', which is carried in yokes having a vertical adjustment, as shown. Moving this weight F horizontally serves to bring the beam and several parts of the scale in accurate equilibrium. Moving this weight by means of the yokes upward increases the sensitiveness of the scale. This is illustrated by the fact that when a load of 50,000 pounds is on the platform and the beam moves slowly up and down or is perfectly balanced in its central position, a dollar bill placed on the outer end of the beam will instantly depress it to its seat. In addition when a heavy load is on the platform small loads of a few pounds can be accurately

State takes the first place in new construction with 556 miles, Montana showing 409 miles, Minnesota 406 miles and West Virginia 365 miles. Nineteen roads were abandoned during the year. The total length of line, including all tracks, was 230,137 miles, which embraces 10,051 miles of second track and 42,043 miles of yard track and sidings.

The total number of railway corporations in existence was 1890, being an increase of 68 during the year. Of this number 752 were independent operating roads, and 939 maintained operating accounts. The tendency toward some form of consolidation during the year was marked; 28 roads, representing 749 miles, were merged; 20 roads, representing 1732 miles, were reorganized, and 16 roads, representing 1469 miles, were consolidated.

The total number of employees in the service of railways on June 30, 1893, was 873,602, being an increase of

The gross earnings from operations on the railways of the United States for the year was \$1,220,751,874, being an increase of \$49,344,531 over gross earnings reported in the previous year. Operating expenses during the year were \$827,921,299, being an increase of \$46,923,303 over the previous year. The final net income available for dividends was \$111,058,034, being a sum less than the corresponding amount for the previous year.

One hundred and seventy-three more railway employees were killed during the year than those killed during the previous year, the total number being 2727. The number of employees injured was 31,729, or 3462 more than the number injured in the fiscal year 1892-93. Seventy-seven less passengers were killed and two more were injured during the year than in the previous year. The numbers were: killed, 299; injured, 3229.

### Ingot Tilting Gear.

Referring to improvements which have been introduced in English rolling mills, in order to save labor and cheaper production, the *Engineer* describes the ingot tilting gear, of which a diagrammatic sketch, in no way entering into detail, is here reproduced. From the description we quote as follows: This is an addition to the live roller gear, and any one who has seen the old system cannot fail to see the relief the new plan affords to the user, and the saving it effects for the masters, with increased immunity from accidents to the men. The ingot on being brought from the soaking pit is placed in the hopper A, which is immediately lowered into the position shown in dotted lines, where it is at once carried forward by the live rollers to the mill, all the turning over and placing being done by the tilting arm C, which is manipulated by a boy, who turns over and places with the greatest ease and precision. The motive power is hydraulic, and there is one cylinder at B and two at D, one giving the tilting motion and the other the horizontal motion, with a view to placing the ingot in a proper line for the several passes. This is an

York City, but agencies and offices will be opened in this country and in foreign countries; and one feature of the association's work will be the maintenance in this city of a permanent exhibit of the resources of the South.

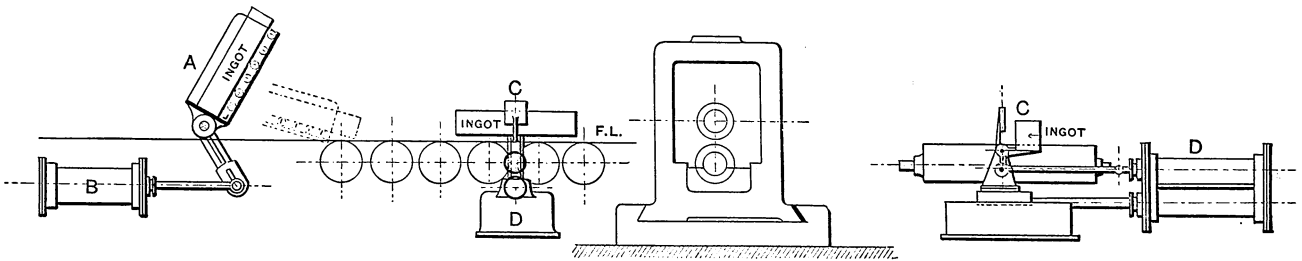
### Dolomite as a Flux for Blast Furnace Use \*

BY ED A. UEHLING

The dolomite which is most available in the Birmingham district is of exceptional purity, both as to the foreign matter it contains and as to the proportion of lime and magnesia carbonate of which it is composed, viz.: 55 per cent. of the former and 43 per cent. of the latter, with only 2 per cent. of foreign matter. The theoretically pure dolomite should be composed of 45.65 per cent. of carbonate of magnesia and 54.35 per cent. of carbonate of lime. The limestone of the district is vastly more irregular. While there are some ledges of exceptional purity, there are others that are entirely worthless for fluxing purposes. The worst feature of these irregularities is that the impure ledges make their appearance in all the

naces for nearly two years, and at intervals as high as three-fourths have been put on with the best of results, the ore mixture being half Hard and half Irondale at the city and from one-fourth to one-third brown with generally equal proportions of Irondale and Hard at the North Birmingham furnaces. The coke used contained considerably above the average amount of sulphur found in the average coke of the district. The iron was of as good a quality as could have been produced with all limestone as a flux, and the furnaces have worked more regularly than they did prior to the use of dolomite.

The assertion that the use of dolomite has a tendency to make light colored iron is not sustained by fact. Some of the most celebrated foundry irons are made with all dolomite as a flux. In fact there is nothing else used in the whole Lehigh Valley. The writer had used it for years, while in charge of the blast furnaces of the Bethlehem Iron Company, and experienced no difficulty in keeping the sulphur within the required limits, even with ores containing as high as 1.5 per cent. of that element. The Illinois Steel Company are also using dolomite exclusively in the furnaces of their



INGOT TILTING GEAR.

important detail, and one which, although expensive, will soon repay the heavy outlay.

### The Southern Exchange Association.

A convention of Northern and Southern business men met last month in New York for the object of "stimulating the material progress of the Southern States." A permanent committee was then appointed to formulate plans and arrange the details of a new organization having the above named object in view. This work was accomplished last week, when the Southern Exchange Association was formed and organized, with a capital of \$500,000, which it is proposed to raise by voluntary subscriptions from transportation lines, from Northern corporations using large stretches of land in the South, from the cities in the South, and through other channels. The following officers were elected: Hugh R. Garden, president; Stuyvesant Fish, vice-president; John Iman, treasurer, and Col. R. Wayne Wilson, secretary and general manager.

The main objects of the new organization, as set forth in the articles of association, are to endeavor to procure the passage of laws in the Southern States that will facilitate adjudication and encourage the influx of capital and population, and to aid in every possible way the development of the Southern States, &c.

The headquarters of the Southern Exchange Association will be in New

quarries thus far opened. For this reason it has not been possible to get limestone that will average above 96 per cent. in carbonate of lime and 94 to 92 and even down to 90 per cent. is not infrequently the average of whole shipments.

The relative values of the two available fluxing materials of the district are to each other as 88 to 102.19. That means that 88 tons of dolomite will do as much work in the blast furnace as 102.19 tons of limestone. Put into dollars and cents, this means that if dolomite can be bought for 60 cents a ton, limestone is worth only 52 cents a ton; or, if limestone costs 60 cents, dolomite is worth 69.5 cents a ton.

There is only one valid objection that can be brought up against the use of dolomite as a flux in the blast furnaces, and that is, that magnesium has less affinity for sulphur than calcium, and dolomite is therefore less efficient as a desulphurizer than limestone, to the extent that caustic lime is displaced by magnesia. This objection, however, becomes quite insignificant where the ores are practically free from sulphur, as is the case in the Birmingham district, especially when a considerable proportion of hard ore is used in the mixture, the lime of which, in connection with what is contained in the dolomite itself, is ample to take care of the sulphur contained in the coke.

One-quarter to one-half dolomite has been used regularly in the Bloss fur-

\* From a paper read before the Alabama Industrial and Scientific Society.

Joliet Works. They are doing very good work and have no trouble with the sulphur whatever. The inefficiency of dolomite to carry off sulphur is probably very much exaggerated.

There are impure dolomites as well as impure limestones; but when of good quality, and used intelligently and without prejudice, it always gives good satisfaction. In addition to its superior fluxing power, there is decidedly less tendency to hanging with dolomite than with carbonate of lime. To C. A. Meissner belongs the credit of having first systematically tried dolomite with the Birmingham ores, and on the strength of the good results obtained, he has developed a quarry, but has not met with the success he deserves in introducing it at all the furnaces. It is certainly worthy of a trial, which if carried on without prejudice cannot help but result beneficially to all concerned.

The three new gunboats building at Newport News, Va., are progressing rapidly. They are to be named respectively the "Albatross," the "Penguin," and the "Porpoise."

The total amount received by the World's Fair, at Chicago, from concessions of every character is stated at \$3,543,612.04. Individual payments by concessioners ranged from 94 cents to \$296,760.90. Electric launches paid \$110,615.18, and the electric elevated railroad, known as the Intramural, paid \$128,406.45.



## The Manufacture of Open Hearth Steel in Sweden.\*

BY ERIK G. SON ODELSTJERNA, ENGINEER  
OF THE JERNKONTORET, FILIPSTAD,  
SWEDEN.

In other countries the early open hearth steel industry was specially based on the use of cheap scrap and pig iron, to produce a second-class soft steel, and also on the use of relatively cheap low phosphorus puddled iron, with as small a proportion as possible of more expensive low phosphorus pig iron, to produce hard steel for domestic consumption. Not so with us. We have always

tig of Kilafors and Director L. Rinman are really the gentlemen who established the Swedish open hearth steel business, in that they employed with entire success charges of 60 per cent. of pig iron and 40 per cent. of wrought iron, and even with a greater proportion of pig iron. Director Rinman successfully used rich iron ore also for the process. At the small furnaces first built the fuel consumption was of course very great—from 375 up to 560 pounds per 100 pounds of steel produced in furnaces of 470-pound heats.

In 1869 a furnace was built by J. L. Sebenius, carrying 1 ton at a charge and running with a fuel consumption of about 275 pounds per 100 pounds of steel. After this the dimensions of new furnaces were increased and their fuel

quency, even works which lacked sufficient forests to produce the needed wood for fuel could build larger furnaces; and the demand for such constructions received a considerable impetus, particularly as our furnaces acquired an excellent reputation for good working and fuel economy, so that even from Russia and Finland many orders for designs of open hearth furnaces were received. For the last few years, however, a decrease has taken place in new construction, as a consequence of the low prices commanded by the product. Yet these years have been of some benefit to us, since, by perfecting the process and improving the construction of producers and furnaces, we have attained a much smaller running cost than be-

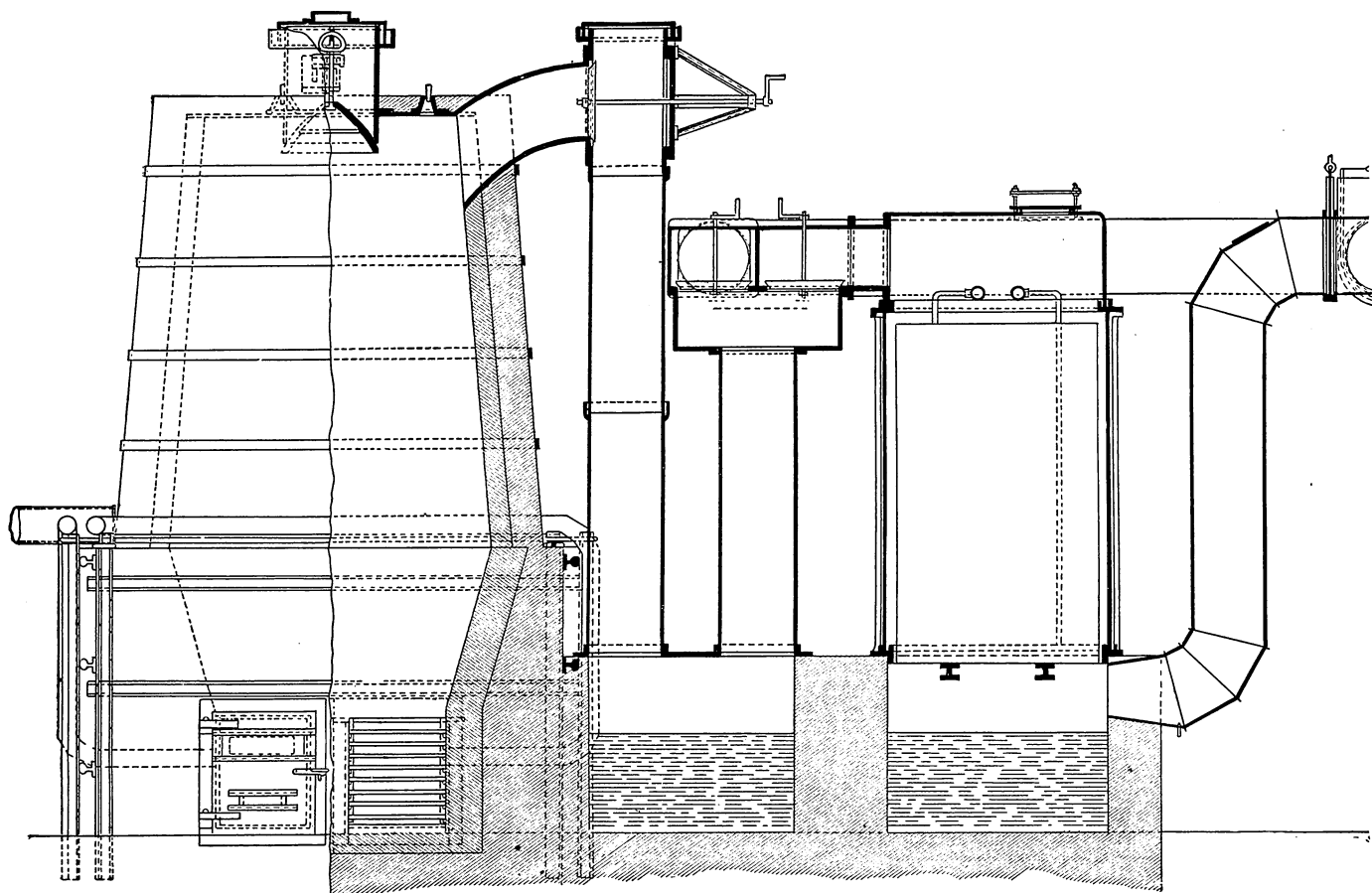


Fig. 1.—Gas Producer for Wood.—Section A B C.—Scale, 1:60.

been and are still obliged to sell most of our iron product to other countries, and we have always to hold our market by maintaining the very best quality, since our expensive raw materials and transportation have made it impossible for us (at least up to the present time) to make cheap iron. We have therefore to aim chiefly at the production of the finest, softest steel and the very best tool steel, to which has been lately added the manufacture of good steel for castings; and we must make those products in the way that is the cheapest for us—that is, with the use of as much pig iron and ore and as little wrought iron and scrap as possible, because we have pig iron, free from phosphorus and sulphur, a good deal cheaper than wrought iron and scrap; whereas, the opposite relation between non-phosphoric pig iron and puddled wrought iron has obtained in other countries.

The iron works proprietor C. A. Ret-

consumption reduced, until at the end of 1878 there were seven steel works in operation, with eleven furnaces, the highest charge capacity being 4 tons, and the fuel consumption about 200 pounds per 100 pounds of steel. In that year we had started at the Bofors works the manufacture of steel castings, and had found that by this process, without forging afterward, we could make, after the Terre-Noire method, steel castings which would compete for strength, toughness and solidity with the best foreign crucible steel forgings. This increased the general faith in the open hearth steel process, and additional works with larger furnaces were built.

In 1882 we succeeded in constructing a gas producer for coal (Figs. 4, 5 and 6, described below), with the help of which we reduced the fuel consumption at our 10 ton open hearth furnaces, until, at the present time, it amounts to only 20 to 25 per cent. of the weight of the ingots produced. As a conse-

fore, while securing still better steel and steel castings. This latter statement I think all who did us the honor to inspect our iron and steel exhibits in Chicago can confirm; and I take this opportunity to express to E. C. Potter and Dr. H. Wedding the sincere thanks of the representatives of Swedish works for the very kind notices they have given in *The Iron Age* and *Stahl und Eisen*.

A revival of the building of new furnaces in Sweden is now likely to take place, in consequence of the success of tests made at the Söderfors works with another type of producer for wood gas, with a connected apparatus for drying the wood (see Figs. 4 to 7). This reduces the fuel consumption nearly to one-half of what it has been, or for furnaces of 3 ton charges to not more than 70 pounds of wood and for 10-ton furnaces to only about 45 pounds of wood per 100 pounds of steel. This is a very considerable decrease in the fuel expense, and makes it a good deal

\* From a paper presented before the American Institute of Mining Engineers.



cheaper in Sweden to use wood than coal for gas producers.

#### Gas Producers.

The first gas producer employed was that of F. Lundin, which had a con-

brick flue, from which the gas passed through a cylindrical cast iron pipe down to the condenser. In the first section of the condenser the gas was struck by a fine spray of water and thence passed through a steady rain of

regenerators. Figs. 1, 2 and 3 show a modification of this producer, which has been more generally used of late years at the Martin furnaces. It is supplied with another type of condenser called the E. A. Wiman surface con-

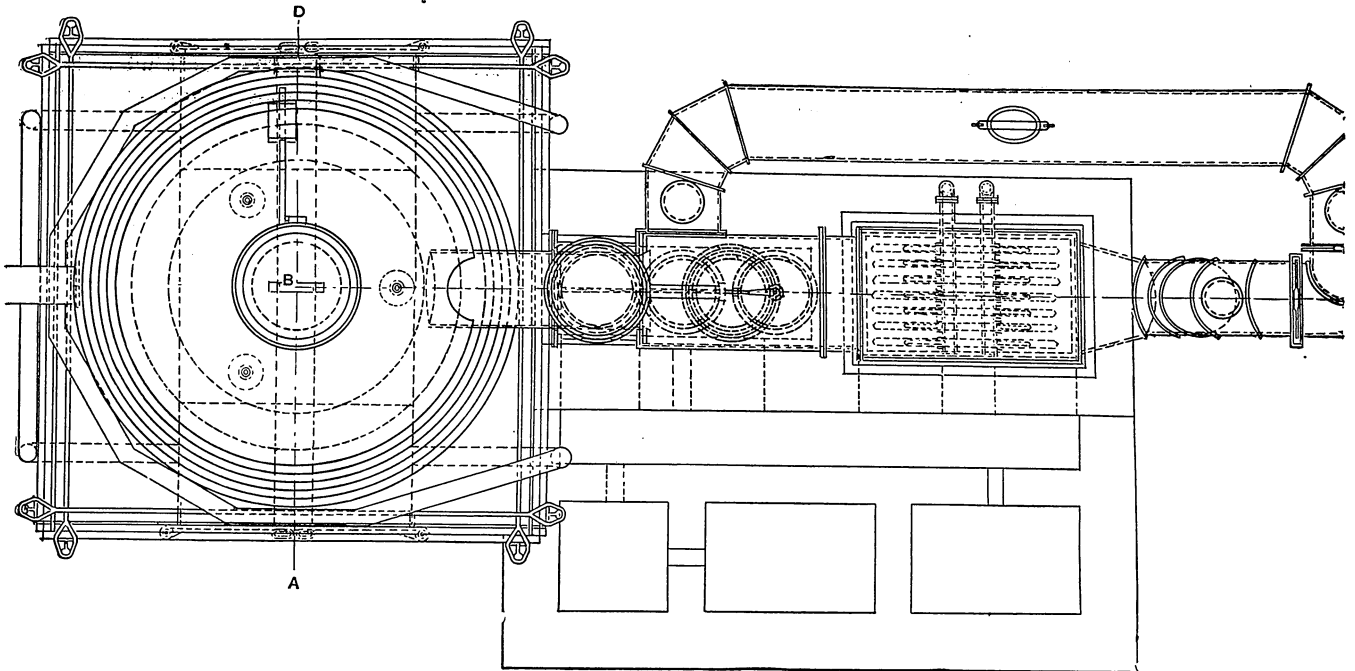


Fig. 2.—Gas Producer for Wood.—Horizontal Section.—Scale, 1:60.

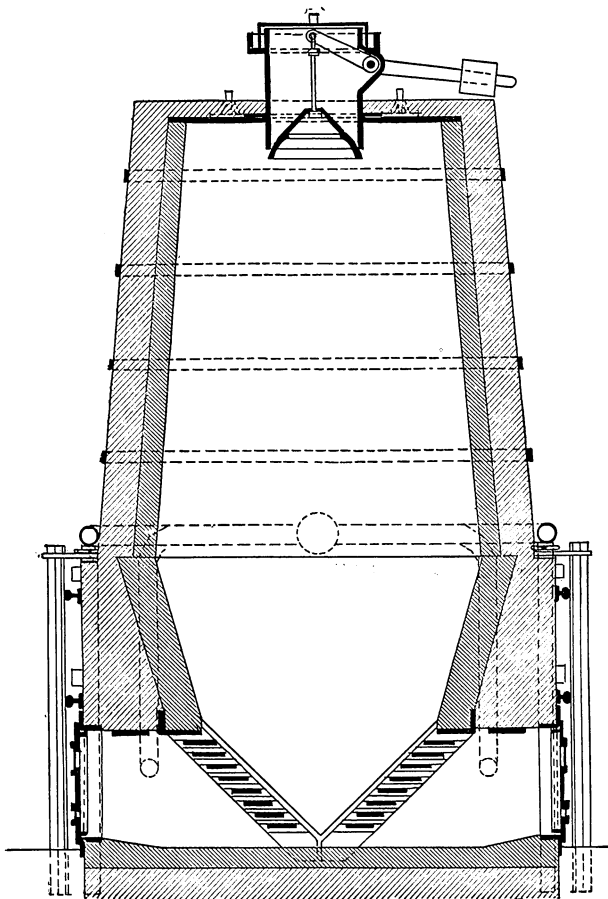


Fig. 3.—Gas Producer for Wood.—Section A D, Fig. 2.—Scale, 1:60.

densing apparatus for the gas. The producer consisted of a square generator, supplied at the bottom with a grate and at the top with a tight fitting charging funnel, having at one side an upright

water up between iron cross bars, where the last of the vapors which could be condensed were collected, together with the greatest part of the tar. The gas then passed through pipes to the furnace

denser. The water which in the Lundin condenser was sprinkled in the gas, taking out vapors, tar and acetic acid, used to run, charged with these substances, into rivers, where it poisoned the fish and made the water unfit for human use. This resulted in a good deal of trouble, involving law suits and the payment of damages by the iron works, as well as the ultimate prohibition of the discharge of this water into the rivers. Björklund then constructed a surface condenser consisting of brass tubes surrounded by cold water, through which tubes the gas was forced to pass. These tubes being difficult to keep clean, Wiman designed as a substitute his surface condenser, which consists of thin plate iron boxes placed near together, into which the cooling water is admitted at the bottom to pass out at the top, while the gas passes between the boxes from the top downward. This method makes it practicable to separate independently the water, tar and acetic acid from the gas, and permits the transportation of these noxious substances by rail to places far from the rivers.

The producer itself consists of a circular shaft, about 20 feet high, with its greatest diameter about half way between top and bottom, and covered with a cast iron plate, furnished with a bell and hopper. At the bottom of the producer is the ash pit, with grate and inlet for the blast. This producer has been constructed according to calculations based on many analyses of the gases taken from producers of different sizes and produced from the three different water containing fuels—namely, wood, peat and sawdust; and it is so calculated that it should deliver a gas with the least possible percentage of carbonic acid. For this reason it is larger than those previously employed. It consumes also less fuel for the same product than the previously constructed condenser producers.

In Sweden we have always used blast, both for the production of the gas in the producers and for its combustion in our steel furnaces; by which means we have avoided the building of high chimneys, and have been able to regulate completely the admission of gas and blast to the furnaces. For some years past the writer has had occasion to observe that the tar condensed out of our water containing fuels gives more

have a higher temperature than  $120^{\circ}$  C., an automatic heat regulator is provided by inserting in the blast pipe a copper wire, which, expanding as the temperature of the drying current is raised, opens a valve admitting cold air, and *vice versa*.

#### The Steel Melting Furnace.

Almost all our newly built open hearth furnaces are of the style shown

so that the reactions in the bath can commence sooner. Again, a smaller part of the material is thus exposed to contact with the gas flame. In works where coal or peat containing sulphur is used to make the gas, it is an advantage to have the metal less liable to take up sulphur during the melting. That this is not an imaginary benefit is shown by the considerable reduction of the amount of ferromanganese required

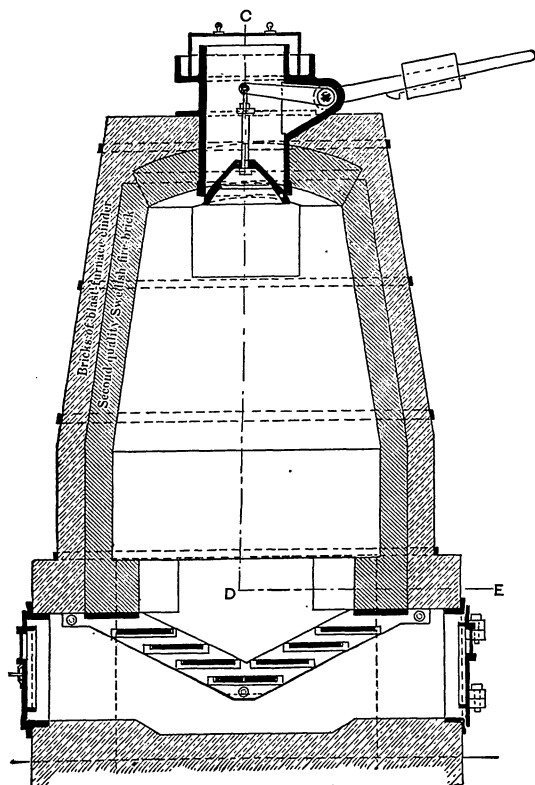


Fig. 4.—Gas Producer for Wood or Coal.—Vertical Section.

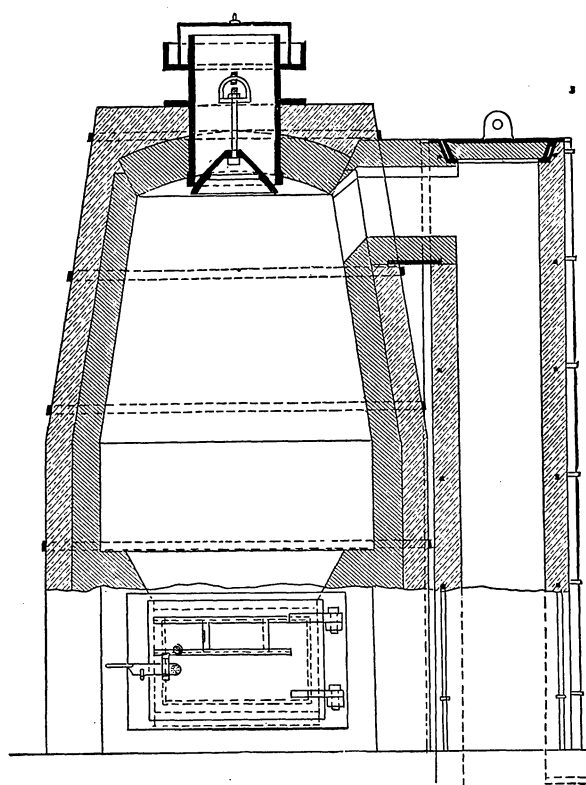


Fig. 5.—Gas Producer for Wood or Coal.—Section C D E, Fig. 4.

heat, if it is allowed to pass into the furnace and be consumed there, than the equivalent of the heat which the water vapors in the fuel carry from well constructed modern furnaces with large regenerators. In accordance with this observation, we experimented at the Söderfors works with both green and dry wood and refuse from saw mills for firing the open hearth furnace. These experiments led to the producer type shown in Figs. 4 to 6 inclusive, with drying apparatus, Fig. 7, by means of which such a considerable saving in the wood is made that it now becomes much cheaper to fire with wood than with coal. As the producer is not larger than one of our common coal gas producers, it can be run with coal as well. No further description is needed, as it is sufficiently shown in the drawing.

The apparatus for drying the wood, shown in section in Fig. 7, consists, for a 10-ton furnace, of three steel plate cylinders, covered on the outside with asbestos board, and this again protected by a thick cover of wood. A certain small amount of dry wood is taken out at a time, while the same amount of fresh wood is put in, so that the apparatus works continuously. The drying current is furnished by the products of combustion escaping from the air regenerators of the open hearth furnace. These, instead of passing to a chimney, are drawn by a suction fan into and up through the drying cylinders. As the drying current cannot be allowed to

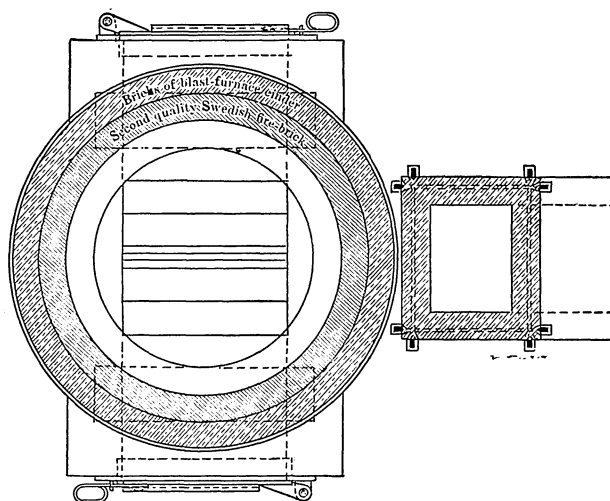


Fig. 6.—Gas Producer for Wood or Coal.—Horizontal Section.—Scale, 1:40.

in Figs 8, 9 and 10. Since 1883 we have generally used very high roofed furnaces with dome arch and with alternating or so called "gallery ports" for gas and air. We prefer, for two reasons, this kind of ports. In the first place, as we like to use the largest practicable percentage of pig iron, we desire that half of the charge should be melted in the hot air currents coming from the ports. In this way, almost all the silicon and even a part of the carbon are oxidized during the fusion,

in a furnace which, after having had the gas ports below and the air ports above, has been changed to the gallery type. The difficulty was, formerly, that the partition walls between the ports soon melted down; but we have overcome this by the use of fire brick of more suitable dimensions and form. We have also been using for many years so called dust pockets for the collection of the spray of slag which accompanies the products of combustion from the furnace.

We let the ports incline downward to the bottom of the hearth, preferring to be able to get the bottom sintered quickly after repairs between charges. This, how-

fect combustion in the furnace as soon as the cold charge has become red hot, and hence no smoke can be seen coming from the chimney of a Swedish open

with those of other countries. We provide in each regenerator 2.5 c. m. (88.3 English cubic feet) of regenerator capacity per ton of steel which

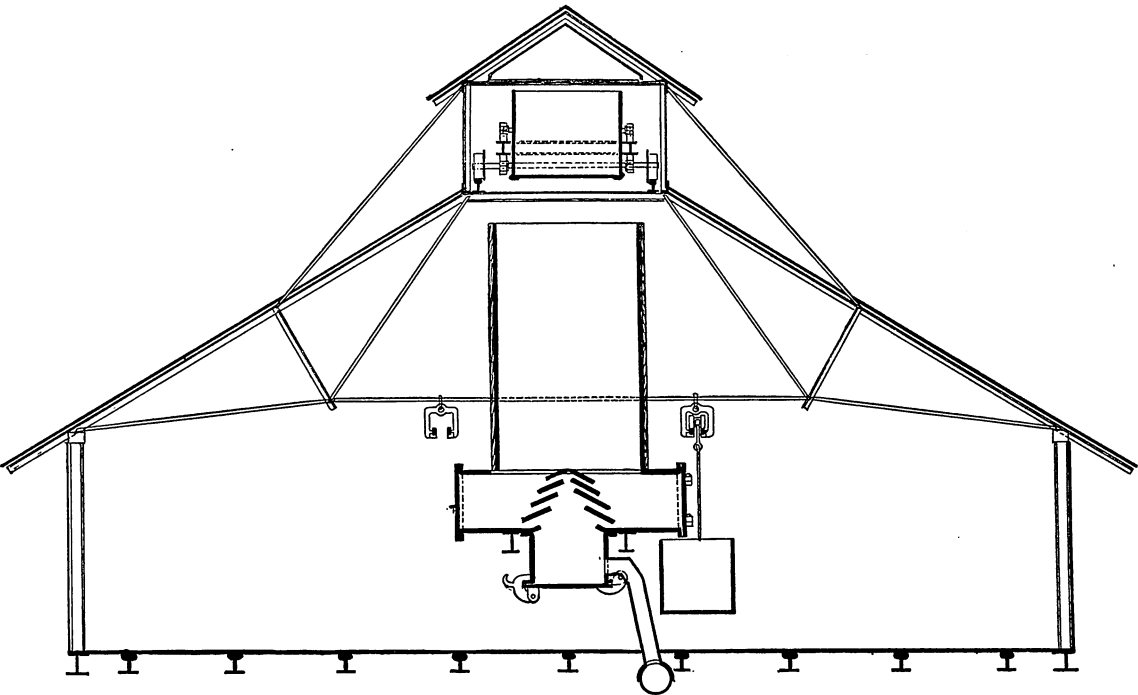


Fig. 7.—Kiln for Drying Wood.—Scale, 1:80.

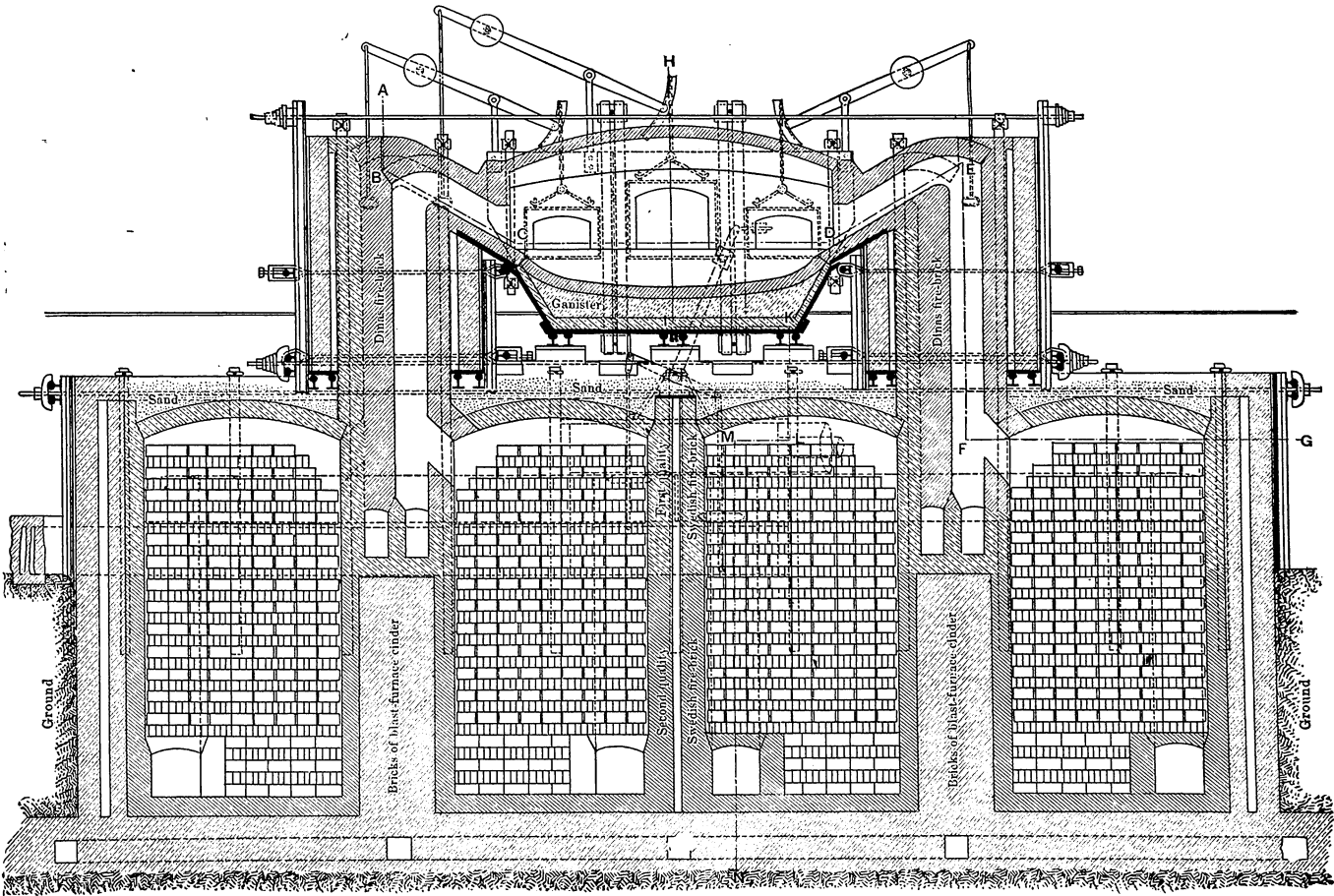


Fig. 8.—Open Hearth Furnace.—Section O P Q R.

ever, certainly occasions a loss (through a very small one) in fuel, by reason of the less perfect combustion of the gas just after a fresh cold charge has been added. The use of the gallery ports secures per-

fect combustion in the furnace as soon as the cold charge has become red hot, and hence no smoke can be seen coming from the chimney of a Swedish open

hearth works, except for a short while after a new charge has been made, or at the reversing of the valves. The regenerators at our open hearth furnaces are very large as compared

the furnace is to give at each cast. That is, for a 10-ton furnace, each regenerator has a capacity of 25 c. m. (883 cubic feet), or, for all the four together, 100 c. m. (3532 cubic feet.)

Before 1880 there was, here and there, an old furnace with wholly or partly horizontal regenerators, but as they never could be constructed so

**Charging Scrap into Open-Hearth Furnaces.**—Benjamin Talbot of Pen-coyd, Pa., has been granted a patent on a simple and ingenious method of put-

fies it binds the scrap together in one mass. The scrap is at the same time heated so that when the block is charged less heat is required to melt it down.

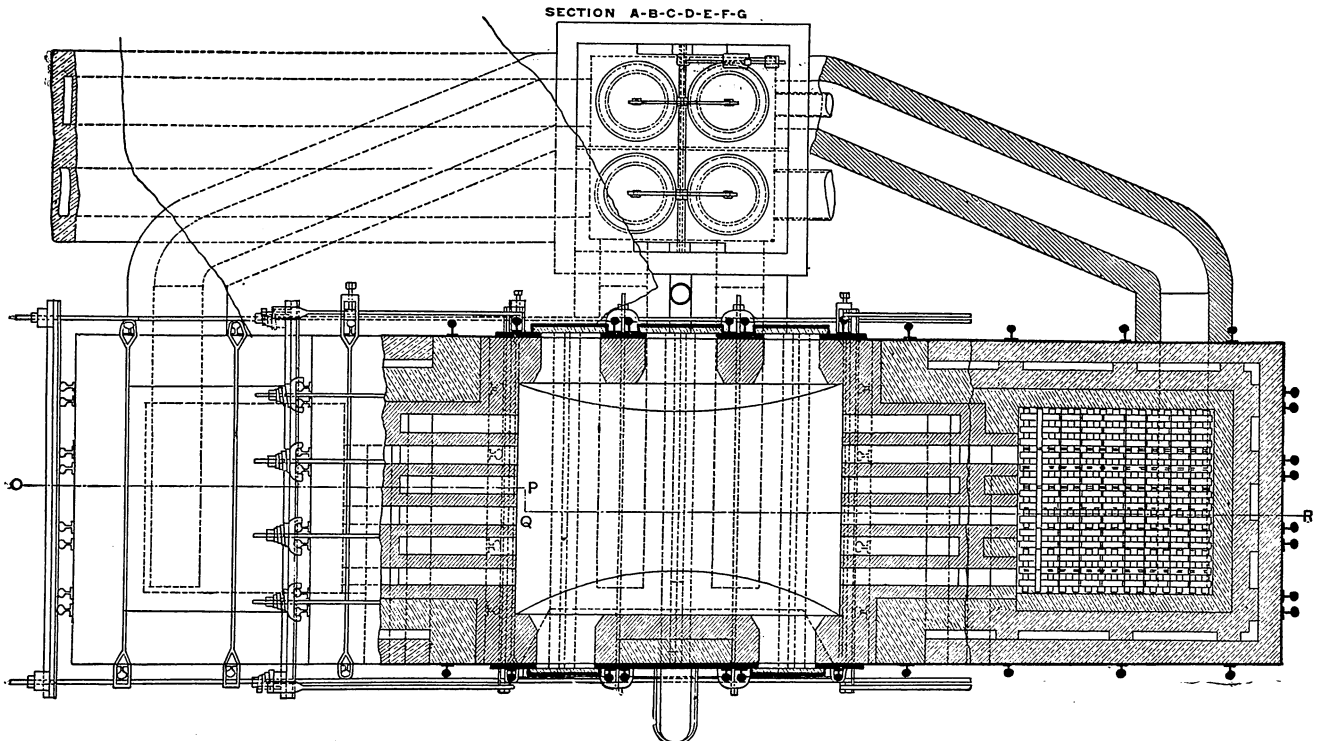


Fig. 9.—Ten-Ton Open Hearth Furnace Erected at Strömsnäs Iron & Steel Works in Sweden, and at Dobriansky Iron & Steel Works in Russia.—Scale, 1:60.

as to receive and give out in a fully satisfactory way the heat of the products of combustion, we now always use vertical regenerators. Moreover, to prevent loss of heat, we bury them as far as practicable in dry ground, and the portion of the regenerator left above the ground is in most cases covered with asbestos board, and this again protected with sheet iron. Over the roof of the regenerator is laid a cover of about 1 foot of dry sand. The object of all this is to save fuel. Only the walls of the furnace proper have not this covering, but the brick is protected by 1-inch cast iron plates. The best valves we have are the so-called American lift and drop dish valves, which rest against water cooled seats and are easily adjusted so as to be always entirely tight. As our gas from wood and peat usually enters the furnace as cold as the air, or colder, we make the gas regenerators of the same size as the air regenerators.

(To be concluded.)

The next meeting of the Western Foundrymen's Association will be held on Wednesday, July 25, at 7.30 p.m., in Room 701 Western Union Building, Chicago. Two amendments to the by-laws will be voted upon—one raising the annual dues to \$10 a year and the other making the regular meetings of the association bi-monthly, instead of monthly. The paper of the evening is entitled "An Economical Cupola," by F. B. Whitcomb of Chicago.

The State Department has been advised that the Spanish authorities in Cuba will refund to importers of American goods the excess of duties collected in error, owing to an inaccurate translation of the reciprocity treaty between the United States and Cuba.

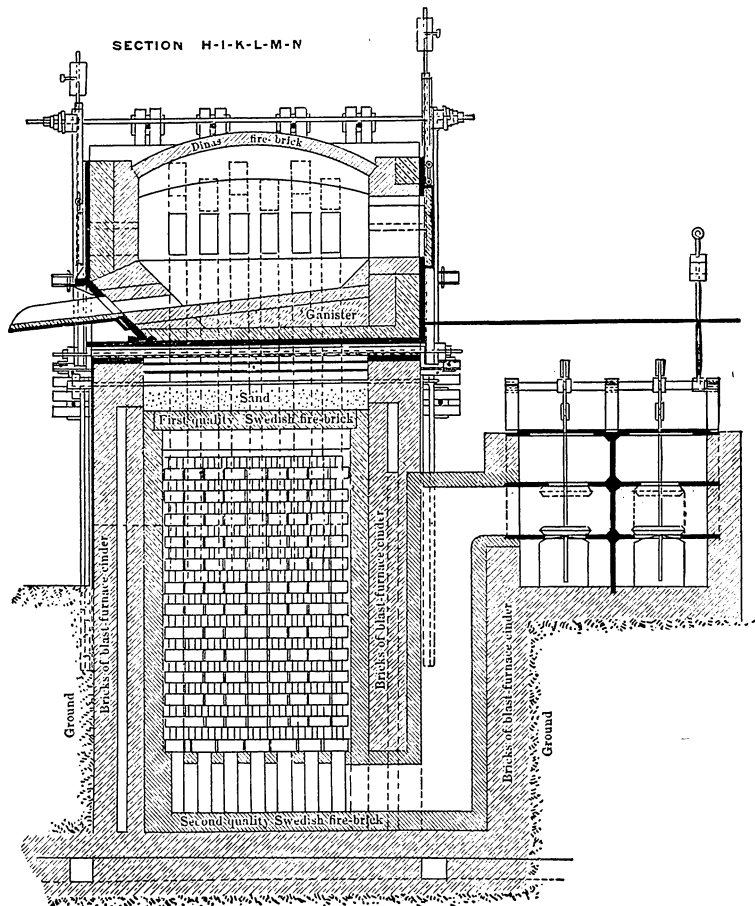


Fig. 10.—Open Hearth Furnace.

ting miscellaneous scrap into shape for convenient charging into the open hearth furnace. He simply packs the scrap into a suitable mold and casts pig iron into it so that when the iron solidi-

Mr. Talbot states in his patent that he casts in a mold made of four plates clamped together, the clamps to be loosened as soon as the metal is set at the outside edges, because the cold

metal in heating expands. In practice he has used an ingot about 5 feet long, 18 inches at the bottom, tapered to 15 inches at the top, and 12 inches thick, with a weight of between 3500 and 4000 pounds. A considerable saving of time and labor in charging is claimed.

The New De Laval Steam Turbine.

Our readers will remember the small De Laval steam turbine that was exhibited at the World's Fair and that attracted so much attention on account of the novel features of its design and the excellence of its performance. United States letters patent were recently issued to C. G. P. De Laval of Stockholm, Sweden, for a steam turbine embodying improvements over the one referred to above. From the specifications we take the following description and the accompanying drawing:

Heretofore in steam turbines, as well as in other steam engines, the energy contained in the steam has been utilized in the form of pressure and the steam has performed its mechanical work during its expansion. According to my invention the steam is expanded in a nozzle or conduit of peculiar construction before it acts upon the turbine or bucket wheel. During this expansion of the steam in the nozzle or conduit the pressure of the steam is converted into velocity and the energy contained in the steam is made use of after it leaves the nozzle or conduit in the form of its *vis viva*. The steam reaches the wheel in this expanded condition and rotates the wheel by its *vis viva*, while heretofore the steam was expanded within or against the turbine wheel or other movable part, which was so actuated by the pressure of the expanding steam.

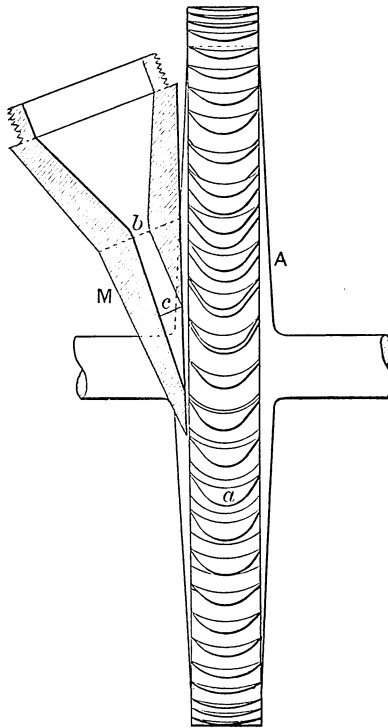
The turbine wheel A is provided on its face with buckets, *a*. The steam nozzle M is fitted with its discharge end against one side of the wheel, so as to direct the current of steam against the buckets. The receiving end of this nozzle is connected with the steam supply. The nozzle is contracted from its receiving end to its narrowest portion, *b*, which has the proper area to deliver the volume of steam which is required for performing the work for which the engine is designed. The nozzle is diverging or gradually enlarged in cross section from this narrowest point to its discharge opening, *c*, by which the steam is delivered against the buckets of the wheel. The axis of the nozzle is arranged at an acute angle to the plane of the wheel, and the end of the nozzle is arranged parallel with the side of the wheel, so as to fit as closely as possible against it. This renders the diverging portion of the nozzle shortest at the point where the revolving buckets first reach the nozzle and longest at the point where the buckets leave the nozzle.

The buckets of the wheel are concavo-convex, and arranged with the convex side forwardly, so that the side portion of each bucket which is adjacent to the steam nozzle stands about in line with the axis of the nozzle in passing by the latter, while the opposite side portion of the bucket stands about at right angles to the axis of the nozzle. This permits the steam current to enter between the buckets on the receiving side of the wheel with very little resistance.

Scientific researches made by other investigators, as well as my own, have shown that when steam issues from a cylindrical or converging nozzle, the maximum of expansion which it is

possible to attain by either of these forms of nozzles corresponds to 57.7 per cent. of the initial pressure. A certain amount of velocity and of *vis viva* is imparted to the steam by such nozzles, but a large amount of the pressure, more than one-half, is not converted into velocity, and the efficiency of such nozzles is therefore very low. I have ascertained that it is possible to expand the steam to or below the atmospheric pressure by a diverging or flaring nozzle and to convert all the energy contained in the steam into *vis viva*.

In my improved nozzle, as shown in the drawings, the converging portion of the nozzle serves principally to reduce the cross section of the outlet to that area which will emit the necessary quantity of steam. In engines of ordinary size, this area of the narrowest



The New De Laval Steam Turbine.

portion of the nozzle is so small that the steam supply pipe has to be much larger in diameter in order to render its connection with other fittings convenient and to avoid excessive friction in the pipe, but while the converging portion of the nozzle is therefore desirable, it is not indispensable.

The steam current, when leaving the narrowest part of the discharge nozzle, has reached the maximum of expansion which is possible in a straight or contracted nozzle, and the pressure under this degree of expansion is equal to 57.7 per cent. of the initial pressure. In the diverging nozzle the pressure is still further reduced by expansion and the speed of the current is correspondingly increased, so that at the discharge end of the diverging nozzle the pressure has dropped nearly to that of the atmosphere or to that of the fluid or medium into which the nozzle discharges and practically all the pressure of the steam has been converted into velocity. In other words, the 57.7 per cent. of the initial pressure which existed in the steam current at the throat or narrowest point of the nozzle is converted into velocity by expansion in the diverging nozzle.

The diverging nozzle is so proportioned that the speed of the steam increases as it passes through the nozzle. In order to attain this result the divergence of the nozzle should be such that the areas of succeeding cross sections of the nozzle increase in a lesser degree than the volume of the steam from cross section to cross section. The speed of the steam at each given cross section of the nozzle depends upon the proportion between the passing volume of the steam and the area of the cross section, and under the proportion stated the volume of the steam in passing through the diverging nozzle increases in greater proportion than the areas of the cross sections of the nozzles, whereby the velocity of the steam is correspondingly increased.

As an illustration it may be stated that a nozzle in which the diverging portion has a diameter of  $\frac{1}{8}$  inch at its narrowest point, a diameter of  $\frac{3}{8}$  inch at its discharge end, and a length of 3 inches will expand steam of 165 pounds pressure per square inch down to 3 pounds, and will produce a steam current of corresponding velocity.

With a properly proportioned diverging nozzle, the steam issues from the nozzle in a compact jet, which has no tendency to further expand or change its pressure or specific gravity, hence there is no tendency for the steam to leak at the sides of the wheel, but the entire jet is bodily thrown against the wheel and made effective in actuating the same.

The steam current issuing from the nozzle with little or no pressure, but great velocity, strikes the buckets of the wheel and revolves the latter at an exceedingly high rate of speed, in many cases higher than 15,000 revolutions per minute. The practically complete conversion of the pressure of the steam into velocity and the utilization of the *vis viva* of the swiftly moving current of steam renders this engine very economical in the consumption of steam, while its construction is exceedingly simple.

The economy of this turbine has been established by numerous trials. For instance, with a 50 horse-power turbine dynamo an effect of 63.7 horse-power was obtained with a consumption of 19.73 pounds of steam and 2.67 pounds of coal per hour and horse-power.

A resolute attempt is to be made toward the introduction and development of manufacturing industries in Chili. The Bureau of the American Republics has been advised that at a late session of the Chilean Ministry it was decided to issue an address to the National Agricultural Society, the Mining Society and the Society for the Promotion of Manufactures, with the view of securing the co-operation of these organizations in augmenting and developing the resources of the country. The last named society has responded and submits the following proposal—namely, that the sum of \$600,000 be expended annually for a number of years as premiums for the establishment of certain industries. The division suggested is as follows:

Iron works capable of producing a certain number of tons of iron per annum.....	\$200,000
Cotton mill.....	50,000
Linen factory.....	50,000
Nitrate of potash factory.....	25,000
Superphosphate factory.....	25,000
Glass factory.....	50,000
Earthenware factory.....	50,000
Sack factory.....	50,000
Common hat factory.....	25,000
Common white paper factory.....	25,000
Match factory, wax or wood.....	25,000



### The "Minneapolis"—The Fastest Warship Afloat.

The United States protected cruiser "Minneapolis" developed, in her trial trip on the 14th inst., an average speed of 23.05 knots an hour over a course 89.94 miles long, thereby establishing a world's record for ocean going warships. The record was formerly held by the "Columbia," a sister ship to the "Minneapolis," with a speed of 22.80 knots an hour. The test of the "Minneapolis" was over a course from a point off Cape Ann, Mass., to a point off Cape Porpoise, Maine, the distance being about 40 miles, and return. The ship was down to her registered displacement of 7350 tons and drew 22.7 feet forward, 23.4 feet aft and a mean draft of 22 feet 8½ inches. The exact speed of the ship over each stage of the course and the detailed account of the working of the engines and boilers will not be known with accuracy until the report of the trial board has been published. But from the reports of the trial which have been published it is learned that the average steam pressure was 160 pounds and the horse power was over 21,000. It is presumed that the tidal calculations made by the officers stationed on the stakeboats will be likely to give a slight increase in speed over the 23.05 knots. The "Minneapolis" earned for her builders, the Wm. Cramp & Sons Ship & Engine Building Company, a premium of \$402,500, the "Columbia" having obtained a premium of \$350,000.

#### Detailed Description.

Since, in former issues, we have described and illustrated the principal characteristics of the "Columbia," it is not necessary now to give more than a general description of her sister ship, the "Minneapolis." Since vessels of this type are designed to be commerce destroyers and not high-powered battleships, battery power has been sacrificed to engine power. Neither ship carries an armament that would justify her commander in giving battle to any vessel more powerful than herself. Her great speed, exceeding greatly that of the swiftest ocean greyhounds, will permit her commander to attack or get out of reach, as he may think proper. The main battery will consist of two 6 inch rifles, mounted forward; one 8 inch rifle, mounted on a pivot carriage aft, and eight 4-inch rapid fire guns. In the secondary battery will be 12 6-pounder rapid fire cannon, four 1 pounders, and four Gatlings. The vessel has also been fitted with five torpedo tubes. There is one on each bow and quarter, and one fitted in the stern.

The ship is driven by three sets of triple expansion engines, all of the same size. Each engine is in a separate water tight compartment and is also lutely independent of the others. The side propellers are 15 feet in diameter and are 3 feet above and 14 feet forward of the middle propeller, which is slightly smaller than the twin screws. The diameter of the middle screw is 14 feet. The pitch of each propeller is 21 feet. All are three bladed and are of manganese bronze.

The engines which drive the twin screws are situated forward of the one which revolves the middle one. The engines are of the triple expansion type. The high pressure cylinders measure 42 inches in diameter, the intermediate 59 inches and the low pressure 92 inches. The stroke of engine is 42 inches.

Steam is supplied by eight double

ended return fire tube boilers. These are 15½ feet in diameter and 20 feet in length. There are also two smaller boilers, which are used for running the dynamos, distillers and electric fans. The boilers are designed to carry a steam pressure of 160 pounds.

An important feature of the engine room equipment is the group of 18 blowers, which are used when the vessel is speeding under forced draft.

The coal bunkers hold 2000 tons of coal and are fitted with overhead railways, by which coal is carried from the bunkers to the fire rooms. With her normal supply of 2000 tons the vessel can steam 11,000 miles, at an average speed of 10 knots per hour.

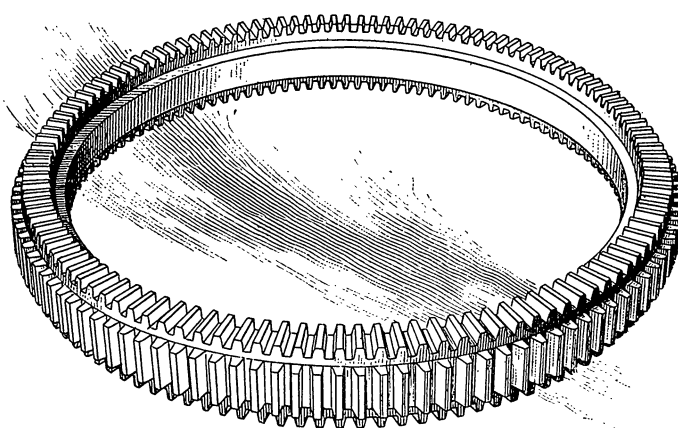
#### Triple Screws.

A representative of *The Iron Age* recently had a conversation with an officer of the corps, who said, in regard to the adoption of the triple screw method of propulsion: "The entire credit for

antee of its strength. It was, therefore decided to distribute the power into three instead of two parts, each being developed by a separate engine driving its own screw. Also in event of an accident as occurred to the 'City of Paris' there would be a reserve power to drive the vessel at a good rate of speed.

"The scheme was further elaborated so that by means of clutch couplings either propeller could be disconnected from its engine and left free to revolve, thus making a minimum retardation of the ship when propelled by one or two engines. The question of economy of fuel in moderate cruising is also important.

"It is proposed on the 'Minneapolis' to make some elaborate tests of the utility of the screws singly and aggregately. It is estimated with one-third power and one screw 15 knots can be made, with two screws and two-thirds power from 18 to 19 knots; the



MACHINERY IN THE FOUNDRY.

the application of the triple screw on vessels of the size of the "Columbia" and "Minneapolis" is due to the chief. Ordinarily in a large office, such as that which he administers, it will frequently happen that valuable ideas are suggested by subordinates that are considered and approved by the head and are then finally worked out to success. Usually the head of the office gets all the credit. In this case no such thing occurred. The idea of using the triple screw was Melville's own, and he carried it out in spite of strong opposition from engineers whose opinions were entitled to much credit.

"Until the trial of the 'Columbia' there was but little information at hand in regard to propulsion by three screws. A number of torpedo cruisers thus propelled were built or being built for the Italian navy and a 6000 ton cruiser for France. A number of experiments on a small scale were also made in France on the launch 'Carpe'."

Commodore Melville in discussing the matter said: "We know what was the outcome of the triple screws applied to the 'Columbia.' We expect to show even better results by the 'Minneapolis.' The adoption of the triple instead of the twin screw was primarily one of necessity. As necessity has as a rule been the mother of invention so it was the principal cause which led to the application of the triple screw. There was no certainty of obtaining in the United States shafting of the enormous size necessary to transmit the required power to twin screws either in a reasonable time or with any guar-

screws not in use being permitted to revolve freely."

#### Machinery in the Foundry.

We illustrate a three faced gear, made for operating the controlling rolls of a 20-inch pipe mill, designed and being built for the Tasker Pipe Association of South Bethlehem, Pa. The gear is 7½ feet in diameter and, as shown in the cut, has a spur gear for its central part and on each side are cast teeth of the same pitch, forming bevel gears 7½ feet in diameter, the whole forming one casting. The spur gear will be driven by a spur pinion and the bevel gear teeth on each side of the spur teeth will operate ten steel bevel pinions, five on each side. The object of our illustration is to call attention to the fact that this complex casting was made by means of molding machinery and without a full pattern. The modern foundry equipment is becoming more and more like a machine room and the introduction of special machinery for producing gearing and other machine castings is fast removing the odium with which the word "foundry" was formerly associated. This gear is part of a mill weighing 60 tons which is being built by Geo. V. Cresson Company, Eighteenth street and Allegheny avenue, Philadelphia, Pa.

A movement is on foot to establish malleable iron and steel works in Toronto, Canada, the promoters being United States capitalists.



### Roe's Manhead and Yoke.

The accompanying illustrations show a new style of manhead and yoke for boilers, &c., which the Glasgow Iron Company of Pottstown, Pa., are putting on the market. They were designed to meet the conditions of greatest

thickness of from one fifth to one-tenth that of the thinnest films that can be produced by the old fashioned process of beating. J. W. Kearton exhibited some "magic mirrors" which he had made. These mirrors are metallic and look perfectly plain. When a ray of sunlight is reflected from them to a

sunlight is reflected on a screen. Prof. C. V. Boys showed photographs of the apparatus used by him to determine the average specific gravity of the earth, the apparatus itself being too delicate to be brought to the hall for exhibition. His method is substantially the same as that used by Caverdish, a century ago, except that the present apparatus is far more delicate and accurate. Professor Boys has been working on this problem for five years, and he finds that the specific gravity of the earth, taken as a whole, is 5.527. It is believed that this result is correct to within one-fiftieth of 1 per cent. It is certainly by far the best determination of the specific gravity of the earth that has yet been made.

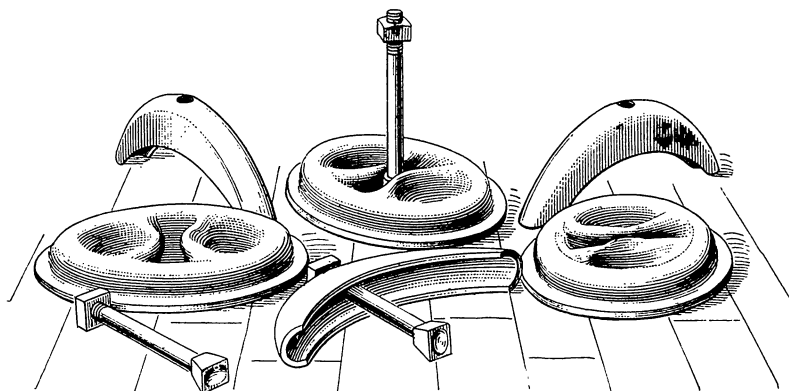


Fig. 1.—Parts Detached.

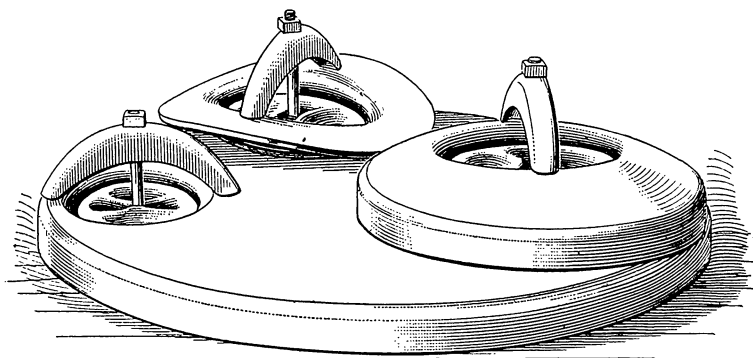


Fig. 2.—Parts Assembled.

### ROE'S MANHEAD AND YOKE.

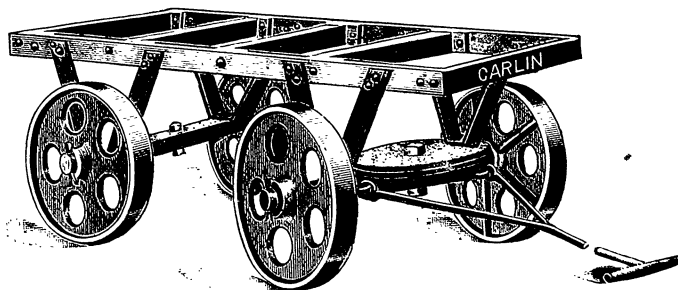
safety, simplicity and small weight, together with a neat appearance. The cover is formed from a piece of best open hearth steel, stamped as shown in the drawings, and framed with a dovetail to retain the bolt. In this way a very strong and reliable cover is formed without having to drill a hole and rivet in the bolt. In addition, all trouble arising from leakage through the bolt hole is avoided. The yoke is also formed of open hearth steel plate, and its form is such that it is practically unbreakable. The weight of manhead and yoke made in this way is less than one-third that of cast iron. Tests of this form of manhead and yoke have shown that the bolt will break before distorting the dovetail depression in the head.

On June 13 the Royal Society of England gave a *soirée* during which a number of interesting things were exhibited. J. W. Swan showed some specimens of gold leaf prepared by him, which are only .000004 inch thick. They were made by electrop'ating with gold on some of the wonderfully thin sheets of copper that Mr. Swan produced in a similar manner some years ago. After the gold had been deposited the copper foil was dissolved away by perchloride of iron, leaving only the gold. The gold leaf so prepared has a

screen, however, a pattern appears on the screen in dusky lines. These "magic mirrors" were invented by the Japanese, who engrave a pattern on the back of the mirror and then polish the front. "The portions corresponding to the raised parts on the back stand up more rigidly to the polishing tool and

An 18 inch Harveyized nickel steel armor plate, made at the Bethlehem Iron Works, has been sent to Indian Head for ballistic test, and will probably be operated on during the present week.

A plan for the improvement of the harbor of Vera Cruz is now under consideration, which, if carried out, will



THE CARLIN IRON BUGGY.

therefore suffer a greater reduction, the evidence of which is afforded by the reflected beam." Mr. Kearton's mirrors are prepared in a different manner. He etches the pattern on the face of the mirror, and then polishes the mirror till the pattern is no longer visible. It will still show, however, when the ray of

involve the expenditure of about \$7,000,000. The work will be undertaken by a French company, who propose to dredge out the port so as to give a depth of water of 27 feet alongside the wharves, using the dredgers formerly in the service of the Panama Canal Company.

## CORRESPONDENCE.

**The Competition of Convict Made Goods.**

*To the Editor:* The subject of the serious encroachment of free labor by convict made goods is now engaging the attention of the thoughtful everywhere without regard to politics. In our case it has become such a serious matter that it threatens the very existence of the hollow ware industry. The lack of employment of men willing to work, but who are compelled to stand idly by and see their families suffer for the necessities of life, is as much due to prison labor as to the many other causes touched upon from day to day in the daily press. As you may want to refer to this matter in *The Iron Age* I give you one item which will serve to illustrate the condition of the free labor as compared with the convict labor position.

Warden Patton in his Indiana report says: "In the foundry of the Southern Prison the set task in the instance of tea kettles is for a man to turn out 27 a day." This work is done at a cost of 50 cents. Warden Patton found by investigation that in foundries where honest labor is employed it cost \$2.27 to produce 27 tea kettles, a difference of \$1.77 per day. What is true of this is also true of other goods, and the question is shall our men suffer a reduction to meet convict labor prices or go hungry? It must be remembered that while this element of competition is forced on free labor the State even furnishes the plant, while the capital for the free plant must be furnished by the individual. State laws to control this monster have proven ineffectual. Even in States where prison labor does not abound, prices are made by convict productions which set the pace of ruinous prices, decrease wages and produce dissatisfaction, strikes and disaster. I inclose you copy of the O'Neill bill.

A. C. FAUST.

Treasurer the Stuart & Peterson Co.  
BURLINGTON, N. J., July 12, 1894.

We append below the O'Neill bill and the petition which is being widely circulated.—[Editor *The Iron Age*]:

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled:*

That every person who knowingly transports, or causes to be delivered for transportation, from the State or Territory in which they are in whole or in part manufactured any goods, wares or merchandise, in whole or in part manufactured by convict labor, in any penitentiary, prison, reformatory, or other establishment in which convict labor is employed, to or into any other State or Territory, or into the District of Columbia, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not less than \$250, nor more than \$500, or by imprisonment not exceeding one year, or by both such fine and imprisonment at the discretion of the court, and such wares, goods or merchandise shall be forfeited to the United States.

Sec. 2. That it shall be the duty of the several United States district attorneys to prosecute all violations of this act by any person making the complaint under oath, and the same shall be heard before any district or circuit court in the United States or Territorial court holden within the district in which the violation of this act has been committed.

Sec. 3. That this act shall take effect at the expiration of one year from and after its passage.

*To the Senate and House of Representatives of the United States in Congress Assembled:*

Your petitioners most respectfully represent that they are citizens of the United States, engaged in industrial pursuits; that the prevailing system of employment of convict labor in the prisons of the several States operates unjustly and injuriously upon your petitioners and other citizens engaged in like productive industries, by imposing upon them an unjust, unequal and ruinous competition in the markets of the country, with the products of such convict labor; and that they believe no adequate relief can be afforded unless through the intervention of your honorable bodies in their behalf.

They likewise most respectfully represent that practical experience teaches that such system fails either to reform the convict or to deter the evilly disposed from the commission of crime; that it tends to degrade free labor, to harm honest workmen, to ruin long established industries and to impoverish the deserving citizen without profiting the State.

Your petitioners submit that it is manifestly unfair and unjust that the State should enter upon an unequal and injurious competition with honest citizens, or unnecessarily employ its prisoners at such labor as lessens the wages and subverts the industrial interests of those engaged in productive occupations. That many of the most influential of the States have officially declared that the evils resulting from the present systems of employment of convict labor are serious and widely distributed, and conceded that no general system of regulation or cure can be established by State legislation; and that national legislation and mediation are required to afford adequate relief; and that Congress can alone confine trade within State lines and harmonize conflicting State interests. Your petitioners beg leave to add that this is one of those exigencies of general concern that the framers of the constitution undoubtedly had in view when they so wisely conferred upon Congress the power "to regulate commerce among the several States, establish justice and promote the general welfare."

Your petitioners do not believe that the State should support its convicts in idleness, but that their reformation should be the paramount aim of prison discipline and all mere economic considerations be subordinated thereto; that the State should stimulate them to acquire habits of industry by paying to them at their discharge a reasonable proportion of their earnings, and by teaching them complete trades and not parts of trades as under present systems.

Your petitioners believe that if the following system of employment of convict labor were generally adopted, the evils of which they complain would be substantially removed, without loss to the State, and with benefit to the convict; to wit: the public account system alone used; prisoners confined to hand trades or unskilled labor, the number of industries enlarged, including as few domestic industries as possible; the number of prisoners lessened by establishing reformatories in which shall be confined such as have been convicted of a first offense, not punishable with death, or for life, all public institutions

supplied by prison made goods, and all prison made goods duly marked as such before offered for sale. They earnestly commend likewise that the hours of labor be lessened and additional time employed in the moral instruction of convicts.

Nevertheless, until such a uniform system has been established by the several States employing their convicts in skilled labor, your petitioners earnestly insist that the interests of honest labor engaged in productive industries imperatively demand the intervention of your honorable bodies in their behalf, and pray that an act be passed prohibiting under adequate penalties the sale or offering for sale of any goods, wares or merchandise, the product in whole or in part of convict labor, outside of the State in which they are manufactured.

Finally, they pray your honorable bodies to take such action, the premises considered, as may be fitting to secure the joint action of all the States employing their convicts in skilled labor to the end that such a general and harmonious system, consistent with the rights of the National and State Governments respectively, may be established, as will protect free labor engaged in productive industries; tend so far as practicable to the reformation of the convict, and "promote the general welfare."

**Freight Discrimination Against Pittsburgh.**

*To the Editor:*—In your issue of July 5, "Producer" makes some comments respecting an article in your previous issue, in relation to discrimination against Pittsburgh in favor of Eastern cities, to the South.

In his statement "Producer" attempts to show that Pittsburgh enjoys an advantage over Philadelphia, because the rates from Pittsburgh to points East of New York are but slightly higher than those from Philadelphia to the Eastern points above referred to. Without considering the relative positions of Pittsburgh and Philadelphia, and losing sight entirely of the fact that there are other markets in the country, it might seem that Philadelphia had cause for complaint, but the whole argument on this point loses its force when rates to the West and South are considered. Philadelphia has about the same advantage to the Western points as Pittsburgh has to the East in this respect. Pittsburgh may be able to reach the New England markets at rates that give the railroads a less proportion than Philadelphia pays, but this advantage is equaled in the ability of New York, Philadelphia and other Eastern cities to reach the Western markets at rates proportionately less than Pittsburgh has to pay, say to Chicago, St. Louis, Denver and San Francisco. Consequently, Philadelphia, New York and other Eastern cities have no cause for complaint on that score. This adjustment of rates is understood and accepted generally by the shippers of the country.

This, however, has nothing whatever to do with the point at issue, and we cannot understand what bearing "Producer's" criticism or what effect the block system on the Pennsylvania Railroad has on rates to the South. "Producer" makes the statement that the rate from Pittsburgh to the principal Southern points is "only" \$2 per ton more than from New York, although these two cities are 444 miles apart. As to just what is meant by this statement

is not clearly understood, the intimation being that because Pittsburgh and New York are 444 miles apart that New York is that much nearer the Southern market. Nothing could be more erroneous. Taking the shortest distance, all rail, from Boston, Providence and New York, as compared with Pittsburgh, the results will show that to nearly every prominent point in the South, Pittsburgh is the nearer, yet, notwithstanding this advantage in distance in favor of Pittsburgh, we find that Boston, Providence, New York and all other Eastern points taking same rates, are able to ship to the South at rates ranging from 7 to 10 cents per 100 pounds less than Pittsburgh, and the question now arises, Is it the Eastern cities or Pittsburgh that suffers from the discrimination?

The rate, all rail, from Boston, Providence, New York and Philadelphia to Athens, Atlanta, &c., is 17 cents per 100 pounds, while from Pittsburgh the rate is 24 cents. The rate from seaboard cities to the Southern gateways is 4 cents per 100 pounds. From Pittsburgh to those same gateways it is 10 cents per 100 pounds, although the actual distance from Pittsburgh is much less than from Boston and Providence. Does this look as though the Eastern cities were suffering injury to the advantage of Pittsburgh? These facts are a complete refutation of such a claim, and instead of Philadelphia having any grievance we find Pittsburgh suffering from outrageous discrimination, because compelled to pay 7 cents to 10 cents per 100 pounds higher rates to shorter distances than the Eastern cities pay to the principal Southern cities. "Producer" suggests that a mileage system be adopted. Pittsburgh heartily echoes the idea, because if such a plan were put in force, it would put Pittsburgh in the position its location properly demands, which rights have been denied it for years, and while such a basis would slightly increase Western rates to the East, it would enable Pittsburgh to reach the Western markets and Southern cities at more reasonable figures, and under the operations of the mileage system, Pittsburgh, because of its location, instead of having to pay exorbitant rates to the South, as it has for years, would enjoy lower rates to those points than the Eastern cities. This would not only protect our tin plate manufacturers from the discrimination in favor of Eastern importers, as shown by the article in your last week's issue, but it would enable our Western manufacturers to have a fighting chance in the South against Eastern competitors. Pittsburgh has too long been considered but a coaling station between New York and Chicago. Let us have the mileage system.

"SHIPPER."

The London *Engineer*, which has always had remarkable views concerning anything connected with this country, begins an editorial with the following example of its accurate knowledge: "A most remarkable strike is in progress in the United States, and we learn without surprise that its headquarters are in Chicago; a marvelous mushroom city, in which are knotted together most of the principal railway lines of North America, and mainly inhabited by a mixed semi-savage population collected from every nation on earth. It is by no means easy to ascertain what the strike is about; the affair is hardly understood in New York, for example."

## THE WEEK.

The Bureau of the American Republics has received from Cayenne advices of the discovery of rich gold deposits on the frontier of the disputed territory between French Guiana and Brazil.

The *Marine Review* says that tonnage passing through the Sault Canal this season has been very heavy, on account of the great bulk of the largest vessels of the lake fleet being engaged in carrying ore from the head of Lake Superior.

The whaleback steamer "Sagamore," which arrived at New York last week from Tampico, is remarkable on account of her economy in coal consumption. She attains a speed of 12 knots an hour on an expenditure of 16 tons of coal in 24 hours. The "Sagamore" was built at Sunderland, England, according to McDougall's plan, and has hitherto been employed in the Mediterranean coal trade.

The latest move in the steerage rate war between the transatlantic lines has been made by the directors of the White Star Line, who have cut their steerage rate from \$25 to \$10. The American Line has also followed suit in reducing its steerage passage rates to \$10.

An unusual number of New York City corporations are lodging protests in the Supreme Court against the assessments on their property made by the Commissioners of Taxes for the present fiscal year. They include banks, trust companies, insurance, railroad and manufacturing companies and other large corporations.

It is reported that several members of a special committee appointed by the French Government to test the merits of a new explosive, discovered by M. Turpin, a French inventor, have asserted that the wonderful claims put forth for it cannot be substantiated, and that, in fact, the explosive is in no way equal to ordinary smokeless powder.

During the ten years ending 1890 the value of manufactured products in the United States increased from \$106.50 per capita to \$149.63.

Work has been begun at South Chicago on two large grain elevators which, when completed, will increase the elevator capacity of the port to 5,000,000 bushels.

South Dakota last week broke the season's record for warmth, 110° in the shade having been recorded at several points in the State. The intense heat is reported to have seriously injured the growing crops in the Dakotas.

An abstract of the eleventh census has been printed, and is now ready for distribution.

The wheat growers of Minnesota are reported to be suffering for want of binding twine, large shipments of which have been delayed on account of the strike. A boycott of the twine shipped on the boycotted roads is threatened.

Eight hundred employees of the Pennsylvania Railroad shops, at Logansport, Ind., resumed work on Monday on full time.

The United States now number 45, President Cleveland having on Monday signed the bill admitting Utah to Statehood.

The summary of immigration statistics for 11 months of the fiscal year, published by the Treasury Department,

indicate that the decrease of immigration for the year will be about 50 per cent., as compared with that of last year; or about 300,000, as against 450,000 in 1893.

The Chief of the Bureau of Statistics at Washington reports that the total values of cotton, breadstuffs, provisions and mineral oils exported from the United States in the month of June, 1894, and during the 12 months ending June 30, 1894, as compared with last year, were as follows:

COTTON.			
	1894.	1893.	
June.....	\$5,199,161	\$6,859,851	
Ten months ended			
June 30.....	201,500,000	181,700,000	
BREADSTUFFS.			
June.....	\$7,966,820	\$16,437,724	
Twelve months ended			
June 30.....	161,777,730	195,911,615	
PROVISIONS.			
June.....	\$17,382,843	\$14,219,681	
Twelve months ended			
June 30.....	174,131,614	161,785,974	
MINERAL OILS.			
June.....	\$3,631,415	\$3,939,182	
Twelve months ended			
June 20.....	40,697,785	41,540,778	

The June increase of \$3,000,000 in provisions was thus accompanied by the large falling off of \$8,500,000 in breadstuffs and a slight decrease in mineral oils. Wheat alone showed a decrease of \$6,000,000. The figures for cotton are for the ten months from the beginning of the crop year, September 1, and show an excess of \$20,000,000. This, with the increase of \$12,500,000 in exports of provisions and cattle, are, however, more than balanced by the decrease in breadstuffs exports for the year of \$34,000,000.

The New York City Directory contains 387,411 names, which at the usual ratio of five to one would make the city's present population 1,937,000. Probably 2,000,000 would represent the actual population at the present time.

The following shows the condition of the crops, according to the Government report, for the past five years:

	1894.	1893.	1892.	1891.	1890.
Corn.....	95.0	93.2	81.1	92.8	93.1
Winter wheat.....	83.9	77.7	89.6	96.2	76.2
Spring wheat.....	68.4	74.1	96.9	94.1	94.4
Oats.....	77.7	88.8	87.2	87.6	81.6
Rye.....	87.0	85.3	92.8	93.9	92.4
Barley.....	76.8	88.8	92.0	90.9	88.3
Potatoes.....	92.3	94.8	90.0	95.8	91.7
Cotton.....	89.6	82.7	86.9	88.6	91.4
Tobacco.....	81.0	93.0	92.7	91.1	88.2

Chicago's record of fire alarms for the first ten days of July is noted as being somewhat unprecedented in the history of the Fire Department of the city. During that time there were 638 calls for apparatus. The fire patrol system, too, was kept on a constant move.

Chief Constructor Hichborn, of the Navy Department, is carefully considering a proposal for sheathing the new ironclads, in order to prevent the fouling of their bottoms.

The Craig Shipbuilding Company are about to construct at Toledo, Ohio, a dry dock 350 feet long and 90 feet wide, with 16 feet depth of water over the sill.

The necessary appropriations having been secured, work has been resumed on the new ships at the Brooklyn Navy Yard. The completion of the cruiser "Cincinnati," and the alterations in the gunboats "Castine" and "Machias" are being pushed rapidly forward. The latter vessels will not, however, be ready for sea much before the middle of September.

# The Iron Age

New York, Thursday, July 19, 1894.

DAVID WILLIAMS, - - PUBLISHER AND PROPRIETOR.  
CHAS. KIRCHHOFF, - - EDITOR.  
GEO. W. COPE, - - ASSOCIATE EDITOR, CHICAGO.  
RICHARD R. WILLIAMS, - HARDWARE EDITOR.  
JOHN S. KING, - - BUSINESS MANAGER.

## The Restoration of Order.

Again has a purely representative Government been obliged to demonstrate its ability to suppress internal disorders. This has been done with such alertness and vigor as to impart new and greater confidence to supporters of republican institutions. Our laws have been shown to be equal to such an emergency, and President Cleveland has won the highest encomiums for the splendid manner in which he has enforced them. With very few exceptions, local authorities also have evinced a proper spirit in the suppression of turbulence and the punishment of rioters. After this episode shall have become history, our European critics may probably conclude that popular government is no longer on trial in the greatest republic on earth. The strike inaugurated by Debs and his advisers speedily developed into an actual war against the Government and would have assumed national proportions if it had not been effectively handled as soon as its formidable character was measured. In fact, for a brief period there were so many outbreaks at widely separated points, and the strikers seemed to have such strong support from the class of people ever ready to burn and pillage and even murder, that grave apprehension was felt by the coolest heads of immense damage to property and the loss of very many lives before a sufficient force could be mobilized to overawe the rioters. But the little army of regulars, reinforced by local militia, deputy United States marshals, deputy sheriffs and policemen, proved equal to the emergency and soon restored peace to afflicted communities. The destruction of property has been comparatively light, while the small number of casualties speaks volumes in favor of the forbearance of troops and peace officers.

It must be acknowledged that the remarkable manifestation of loyalty to the cause of law and order and of confidence in the President which was shown everywhere throughout the country, and among all classes without regard to politics, has had a great moral effect in support of the efforts of the conservators of the peace. It is surprising that anything short of war with a foreign power could have drawn forth such strong expressions of patriotism from the people, in the press and from the representatives of the people in Congress. It has thus been conclusively shown that our country, with no distinction as to

classes or masses, is imbued with the most profound regard for its institutions and will crush out with irresistible force any tendency to anarchy. It was seen that the triumph of Debs, through the lawlessness he had, whether wilfully or unwittingly, evoked, would have precipitated on this country worse evils than those which he had essayed to correct.

The flat failure of his co-leaders of other labor organizations to induce great sympathetic strikes of workingmen in general shows that patriotism and common sense still rule in their ranks also. Now that these supreme efforts to array the great force of workingmen against law and order and the constituted authorities have failed of their purpose, the country will be greatly relieved. The threats of a universal stoppage of business have at last been attempted to be carried out, and have been found to be only the empty vaporings of men whose followers refused to follow in a path plainly marked as one of dishonor. Let a full measure of praise be given the workingmen of this country who have refused to be the tools of Debs and to lend themselves as props to his dying cause.

This matter should not be permitted to quietly fade out of the public mind after the fear of further disorder has wholly passed and extraordinary efforts to preserve the peace are no longer needed. No man or any set of men in this country should have the power to suddenly block the wheels of national commerce or to paralyze the business of a vast community. If it is at all possible to devise a system of arbitration which will prevent strikes and tie-ups, by all means let the most astute brains among our statesmen and business men continue at work on the problem until they evolve something practicable and effectual. Strikes should not be permitted which in any way interfere with the comfort and convenience of great numbers of people or jeopard the property rights of citizens. A way should surely be found in this enlightened age by which labor could be secured its just reward and capital given its proper protection. But the sympathetic strike should not be recognized nor tolerated. It should have no place in our social economy unless in the classification of *mala prohibita*.

## No More Cyclones Feared.

A despondent correspondent writes us: "Well, the great railroad strike is over, and the country has again suffered heavy losses to swell the aggregate of the national profit and loss account for this year of grace. From which direction are we to expect another cyclone? It is too much to hope that our troubles are over." We beg to enter a disclaimer against this line of reasoning. All sorts of unexpected things have happened to upset business, and possibly Jove may have another thunderbolt ready forged to hurl

against us, but we don't believe it. For some time the only calamity to be really feared was a national upheaval of labor. The leaders have been determined to try conclusions by the adoption of forcible measures to overcome the influences which have latterly borne so hard on those who work for wages. The effort has been made, and the most formidable undertaking of modern industrial history has completely failed. The conservative policy now manifested by those leaders who have not lost their prestige by futile strikes appears to be a guarantee that we are to have no further disturbance of this kind in the immediate future. The labor crisis burst upon us suddenly, and has passed. Local issues may still have to be fought out and settled, but they are comparatively unimportant, and such conflicts will gradually terminate. The settlement of the tariff question is also very near at hand, and the business interests of the country will then proceed to the great work of building up and restoring the sadly shattered structure of national prosperity.

## Dullness in Railroad Building.

According to information gathered by the *Railway Age*, only 525 miles of new road were added to the railroad system of the United States in the first half of 1894. This small total was divided among 51 lines in 25 States, being an average of a little over 10 miles per road. The following table presents the details:

Track Laid in First Six Months of 1894.		
State.	Lines.	Miles.
Alabama.....	1	1
Arkansas.....	1	6.5
Arizona.....	1	23
California.....	2	17.4
Colorado.....	3	54
Florida.....	2	48
Illinois.....	1	0.6
Louisiana.....	4	46
Maine.....	1	8
Maryland.....	1	4
Michigan.....	2	27
Minnesota.....	2	8
Mississippi.....	1	2
Missouri.....	1	10
Montana.....	1	4
New Jersey.....	3	34.33
New Mexico.....	1	2
New York.....	1	1
Ohio.....	1	14.5
Pennsylvania.....	7	41.8
South Carolina.....	2	50.4
Texas.....	5	34.4
Wisconsin.....	1	20
West Virginia.....	5	46.52
Wyoming.....	1	20.8

Total in 25 States.....51,525.25

The largest mileage was laid in Colorado, 54 miles, chiefly in the construction of two roads to reach the Cripple Creek mining camp. The largest extension was a branch of the Atlantic Coast line in South Carolina, 44 miles. Not a single trunk line of any importance increased its length. The prospects in this direction for the remainder of the year are thus summarized:

From the present outlook it appears that the new railway mileage of 1894 will not exceed 1500 miles. No year since 1865, when civil war had checked progress, has shown so insignificant a total. In 1893 the construction amounted to 2635 miles, in

1892 it was 4200 miles, in 1887 it reached nearly 13,000 miles, or possibly ten times the meager mileage which this year will contribute. And yet there is demand for many more railways. In April last we published a list of railways under construction and projects of a promising character numbering 411, representing every State and Territory in the Union and aggregating over 22,500 miles. But while business depression, tariff legislation, Populism, Coxeyism and Debsism continue to threaten the destruction of capital little money is going to be invested in the hazardous business of railway building.

The figures above given show how thoroughly the spirit of enterprise has been crushed this year. There is much food for thought in the fact that not for thirty years has the total of new track laid been so small as it is certain to be at the end of 1894. Capital is just as slow to venture in other lines of commercial risk as in railroad building.

### The Importance of Stocks of Merchandise.

Old time merchants and manufacturers attach far more importance to the stock of goods in hand than the younger generation is willing to grant to such supplies. In many branches producers are perfectly willing to give full information concerning their current and past output and yet surround with the greatest mystery everything which relates to their stock. Even to this day it is regarded by many as a great feat to "size up the pile" of a blast furnace while passing its yards, while not a glance strays to the tunnel heads to note how many furnaces are running.

It may be granted at the outset that the influence of ordinary stocks upon the market of manufactured merchandise is not as great as it was at one time. Goods can be produced so quickly and can generally be distributed with so much dispatch, relatively speaking, that the absolute necessity of falling back upon accumulated supplies does not occur so frequently. Our modern industry, like a high speed engine, does not require the enormous fly wheel of stocks which it once needed to insure smooth operation. When the demand comes in a rush during certain seasons stocks must be accumulated during the dull period, unless the productive capacity is so large that it can cope with the maximum season demand. In many of our staple articles this is actually the case.

In other branches, in which the fluctuations in the requirements, as influenced by seasons, are small, it takes really very little stock to smooth over accidents to the supply. During the last year the fact that the stocks of goods are extremely light has been dinned into buyers' ears with very little effect. As a warning to purchasers and as a selling point, it has done very little good. Yet we are inclined to believe that the widespread indifference to the influence of stocks is growing dangerous to many lines of industry.

When a scarcity does occur, as happened in Bessemer pig and in soft steel during the coke strike, prices run up very quickly. While a few make a good turn during such a rise, the great majority of sellers suffer, and consumers are put to a good deal of inconvenience. Such a temporary jump of values creates altogether false and in some respects dangerous impressions. No argument will, for instance, convince workmen that their employers are not making money fast because market quotations have been soaring.

Manufacturers have been taught by quite severe lessons during the past few months that it is dangerous to allow stocks of raw material to run too low. It is quite possible that during the next six months merchants and distributors will be made to feel quite keenly that in their case it is unwise to have nothing but empty boxes on their shelves. It is dangerous to travel too long with the crowd, and confessedly the policy of cutting down stocks has been almost universal throughout the country. When the turn does come the rush of replenishing, even in a moderate way, will tax even our great productive capacity. In a quiet way some of the largest merchants in the country have been placing their orders lately, and they will have the advantage over their ultra-conservative rivals when the buying movement begins.

Our point needs to be very carefully considered. In nearly all our manufacturing industries our productive capacity looks enormous, greater than apparently there is any chance to employ. But it must be remembered that there are on the lists many concerns with antiquated plant, who cannot enter the field until there has been a very handsome advance, that there are others which have become bankrupt and which therefore cannot start up in a week, and that many works have been idle so long that their entire force, from the manager and salesman down to the common laborer, has been scattered. It must be further remembered that doubts as to its permanency always surround the first advance, and that that alone delays the resumption of a great many establishments. Production is not so elastic that it can jump from an unprecedented minimum in a week.

The fact that stocks of raw material and of finished goods with few exceptions are down to an extraordinarily low level should be borne in mind by every prudent business man, and it is a wise move to guard against possible contingencies by taking advantage of the present low range of values. As compared with the profits attainable through a rise, the interest account on a moderate stock is small.

An Ottawa dispatch states that the work on the Canadian Sault Ste. Marie Canal is practically finished, and that only a little work on the gates remains to be done before the waterway will be ready for navigation. The new canal and its approaches are 8½ miles in

length. Its lock is 600 feet in length and 85 feet in width, with a depth of water on the sills of 19 feet at the lowest recorded water level, or about 21 feet at the mean water level. The canal proper is 152 feet wide at the top and 145 feet at the bottom. The whole work has cost about \$6,000,000.

### OBITUARY.

WESTON B. THOMAS.

Weston B. Thomas, secretary and treasurer of the American Wire Nail Company, at Anderson, Ind., was murdered on the 12th inst. at Brighton Beach, near Indianapolis. The murderer, Winifred E. Smith, claims that the act was done in self defense. Mr. Thomas was a remarkably bright business man who had inherited wealth and knew how to add to it. He was universally esteemed for his many good qualities, and his untimely death is regretted by a very wide circle of friends and business acquaintances. Mr. Thomas was a native of Kentucky, and had been married only a year.

H. A. BISCHOFF.

H. A. Bischoff, editor of the *Black Diamond* of Chicago, committed suicide by shooting himself through the heart on the 12th inst. Mr. Bischoff was born in Chicago June 3, 1843. A. D. S. Buchanan, acting editor of the *Black Diamond*, thus sketches his career:

Mr. Bischoff was well known all over the country, especially among the Germans and musicians. At the beginning of the late war he enlisted in Colonel Hasker's regiment, which was a volunteer troop organized in Chicago, and took part in many of the leading battles of the war. At the battle of Chickamauga he was severely wounded in the arm, and for a time it was thought he would not recover. His wound healed, however, and he resumed his services in the field. After the war, on account of his remarkable voice, he secured an engagement with Theodore Thomas as a tenor for a concert tour. He sung in all the principal cities of the country, meeting with great success. In all he sung in over 500 concerts and acquired a large acquaintance in musical circles, in which he has ever since been prominent. Finally, private business matters induced him to forsake the artist's profession. He engaged in business and was successful. Nine years ago he founded and has built up to a successful status the *Black Diamond*. Financial troubles could not have worried him, for the paper at the head of which he was at the time of his death is on a paying basis.

J. HERBERT BRAMWELL.

J. Herbert Bramwell, who died in Paris on July 13, was one of the prominent mining engineers of this country, and was well known in connection with the Southwest Virginia coal fields. He was born in Liverpool, England, on November 26, 1846, and came to this country with his parents at an early age. He was educated at the public schools and was graduated at the College of the City of New York. He went abroad and was graduated as a mining engineer at the Clausthal School of Mines. He was for a short time in the service of the Prussian Government at the Konigshutte Iron Works. Mr. Bramwell returned to this country in 1871, and became mining engineer and chemist at the Dunbar Furnaces, in Pennsylvania. He was subsequently



employed at various furnaces and iron works in the Southern States. He built the Quinnemont Iron Works in Virginia, and from there went to Ironton, Ohio, as vice-president and manager of the New York & Ohio Iron and Steel Company. Foreseeing a great future in the Virginia coal region, he turned his attention to coal mining, and was the pioneer of the Pocahontas coal fields. The town of Bramwell, the center of this great region, was named in honor of him. He suffered for a number of years from a spinal trouble, the result of a fall from horseback in the Virginia mountains, when miles away from a human habitation. He finally reached aid by crawling on his hands and knees. He was prominently connected with the American Institute of Mining Engineers and was a member of the Engineers' Club of New York.

H. O. STRATTON.

H. O. Stratton, an old Boston hardware merchant, died at Winthrop, Mass., a few days since, aged 57 years. He commenced his business career with the late Hon. Peter Butler. He was born in Manchester, Mass., and stood high among the business men of Boston.

### The New York and New Jersey Bridge.

The committee of the New York Chamber of Commerce are offering a determined opposition to the proposal of the engineers of the New York & New Jersey Bridge Company to sink the main pier of the new bridge 900 feet from the Jersey shore, and construct a cantilever bridge in this manner, which they claim is the only feasible plan. The Chamber of Commerce, on the other hand, argue that the bridge piers should be located within the exterior pier line at each side of the Hudson River, as the placing of a pier in the channel of the river would prove a serious obstruction to commerce and navigation. They have obtained the opinion of W. A. Roebling, the constructor of the Brooklyn Bridge, as to the entire practicability of a suspension bridge to span the river between Fifty-ninth and Sixty-ninth streets—the limits allowed by the company's charter—and have obtained from him an estimate of the cost, showing that a suspension bridge would be as practicable financially as it would be mechanically. The Board of Engineers appointed by the Government are to hear arguments on both sides and decide this important question this week. By the provisions of their charter, the bridge company are compelled to construct a span of not less than 2000 feet. The cantilever bridge designed by Engineer Charles Macdonald, and favored by the company, having one pier within the exterior pier line on the New York side, and the other 900 feet outside the exterior pier line on the New Jersey shore, would have a span of 2020 feet. A suspension bridge such as the Chamber of Commerce insists on would necessitate a span of at least 3100 feet.

C. Y. Wheeler of the Sterling Steel Company, Pittsburgh, states that there is being made at the Homestead Works an armor plate in which a chrome alloy is used instead of nickel.

The Philadelphia *Ledger* reports that the Midvale Steel Company of Nicetown, Pa., will soon submit for test a 10½-inch armor plate made by a secret process.

## Washington News.

(From our Regular Correspondent.)

WASHINGTON, D. C., July 17, 1894.

The Senators are astonishing themselves with the velocity of their Parliamentary treatment of the appropriation bills. Nine out of the 14 regular bills have been disposed of. At the present rate the last of these measures will have been passed in the upper body of Congress by August 1, if not before that date. In the meantime the conferees on the tariff bill are at work endeavoring to harmonize their conflicting views within the lines of the majority. The most sagacious judgment is that by the time the Senate shall have disposed of the appropriation bills the conferees will have reported and adjusted their disagreements so as to receive concurrence. The only serious hitch is on sugar, although there is a strong pressure to make coal free. The producers are satisfied with 40 cents a ton. The chief pressure for free coal is from New England and it is in that section that the coal interests have expended millions in carrying and terminal facilities in order to extend the market for their product in that section at minimum cost. Several prominent New Englanders, among them Sherman Hoar, are here trying to get coal on the free list. There is some talk of a compromise on a lower figure, possibly 35 cents duty a ton. Another powerful pressure is being brought to bear by the syndicate of capitalists which has been expending large sums in preparation for free coal and a large carrying trade from the Canadian mines by sea, lake and rail.

Between these influences the committee are having considerable difficulty in adjusting the question to the dominant views of their respective bodies. If the conferees should decide in favor of free coal the West Virginia and Maryland Senators and Mr. Brice of Ohio would be placed in an awkward position. They have said, however, that they would make an effort to secure 40 cents a ton, but failing in this would vote for the bill as reported.

There is a strong pressure being made to upset the Senatorial arrangement of the metal schedule, but this is not likely to succeed, as such a step would be likely to throw the whole subject again open.

It was said to-day at the Ordnance Bureau that the trial of machine guns at the Washington Navy Yard and at Indian Head would consume at least two weeks.

The 17-inch Carnegie plate failed to pass. The first shot penetrated 13 inches and the second went just through.

The testimony of the Carnegie officials before the Congressional Armor Investigating Committee, is awaited with much interest. At the Department it is said that the parties who have testified were not familiar with the specifications, that the treating of plates on the ends and then in the center was according to specifications, and that the difficulty of treating large plates was found so great that the plan of treating one end at a time and then the center was adopted by the Department.

The second test of the 18-inch Bethlehem plate was to have taken place before this, but other tests have preceded it. The plate has been at the navy yard here for some days.

The contracts for the supply of armor

piercing projectiles for the Government have been practically completed, and no new orders will be given until the present supply is reduced or Congress authorizes the building of more war ships. The allowance is 30 projectiles to a gun. The full supply, however, is not usually furnished in time of peace, but the full complement of projectiles for times of war is kept on hand in storehouses. The only consumption of projectiles at this time is in tests and target practice, which is very small.

The Carpenter and Sterling projectiles are regarded as representing the highest point reached in this branch of offensive equipment. The Ordnance Bureau is in frequent receipt of information from parties making experiments, but has not learned of anything superior to the projectiles now in use by the navy. The Johnson projectile has been tested by the Government and pronounced good and cheap, but it is not capable of the results of the Carpenter and Sterling.

It is the purpose of the Ordnance Bureau to continue their tests of projectiles whenever anything is offered which presents satisfactory grounds of superiority. The penetrating qualities of the projectile and the resistance of the plate are now so nearly equal that improvements in either are encouraged by the Department.

### The Tunnel of the East River Gas Company.

On Monday the East River Gas Company extended an invitation to visit their newly completed tunnel under the East River and the gas works of the company, at Ravenswood, Long Island City.

It is the object of the East River Gas Company to make gas in Ravenswood and supply it through the East River tunnel to New York. Twenty miles of mains have been already laid in New York, and arrangements have been made for about 150 miles.

The original idea of supplying New York with gas through a tunnel came from Emerson McMillin, the well-known gas engineer, and some of the members of the banking house of H. B. Hollins & Co. In furtherance of this idea a syndicate was formed and the East River Gas Company of Long Island City was purchased. In 1892 the company were authorized to build a tunnel under the East River and supply New York City with gas.

Ground was broken for the tunnel on the opposite sides of the river in May, 1892. In the same month the building of the plant at Ravenswood began. In October, 1892, the company began to lay their mains in New York. Since then the three branches of the work have proceeded co-ordinately. The works at Ravenswood were practically ready for making gas in September, 1893.

The work of building the tunnel was placed under the general direction of Charles M. Jacobs of London. His assistants were W. I. Aims and J. V. Davies. The first work done consisted of making soundings and borings in the channels and on Blackwell's Island. It was finally arranged that the tunnel should be cylindrical, 2,541.4 feet long, 8 feet 6 inches high at the center of the crown, and 10 feet wide, with a dip of 6 inches to 100 feet from the New York side to the Long Island side.

The shaft on the New York side is 135 feet deep, and on the Ravenswood side 147 feet.



The dry rock on the New York side helped the engineers, and early in 1893 about 350 feet of the tunnel had been cut. Then softer rock and water were met with, and the engineers had to introduce compressed air, and first drive wrought iron pipes ahead of them and work behind timber bulkheads. The striking of the softer rock was unexpected, and after going a little way into it the contractors wanted to abandon the tunnel and go back and cut another 50 feet deeper, thinking the rock would be more solid at the greater depth. The consulting engineer, Mr. Jacobs, objected to the proposed change in the plans. The contractors threw up the work, and the tunnel was continued by the gas company, with the aid of its engineers. After 35 feet of the soft rock had been pierced and lined with brick, that plan was found to be unsatisfactory and a lining of cast iron was substituted. Then came another stretch of solid rock, 100 feet thick, and through it the engineers proceeded with little difficulty.

On the Ravenswood side of the East River the excavation was first through 285 feet of soft rock, and then it was found necessary to use compressed air. An air lock was placed in the tunnel near the Ravenswood shaft and the Jacobs system was adopted.

Three mains, one 48-inch and two 36-inch, will be laid in the tunnel.

One-fourth of the plant at Ravenswood is now complete. There is a receiver for the storage of 6,000,000 feet of gas daily. When completed the total capacity of the tanks will be 24,000,000 feet daily.

The officers and directors of the company are Emerson McMillin, president; Emanuel Lehman, first vice-president; Richard N. Young, second vice-president; George G. Haven, Jr., secretary and treasurer; S. L. Cromwell, assistant secretary and treasurer; August Belmont, Charles T. Cutler, George G. Haven, Frederic Cromwell, Robert Goelet, H. B. Hollins and R. T. Wilson. Among the guests were the following:

Emerson McMillin, president of the company; Richard N. Young, George G. Haven, Jr., S. L. Cromwell, Robert Goelet, H. B. Hollins, R. T. Wilson, Charles Cutler, Frederic Cromwell, George G. Haven and August Belmont, directors; and W. F. Havemeyer, B. I. H. Trask, Frederick Edey, Maurice Featherstone, George W. Birdsall, chief engineer; D. L. Hough, engineer for the company; A. S. Miller, engineer of manufacture; Walton Forstall, engineer of distribution; Theodore Moehler, auditor; Ford Huntington, assistant to the treasurer; C. D. Strong, superintendent; Charles M. Jacobs, chief engineer tunnel construction; J. V. Davies, assistant engineer; Walton I. Ames, superintendent; S. D. Babcock, H. D. Juilliard, William A. Merrick, Walter L. Ross, R. A. C. Smith, Joseph R. Slipper, C. H. Livingston, Major G. W. McNulty, Julien T. Davies, Charles F. Stone, J. S. Auerbach, R. S. Stevenson, W. J. Kelly, D. McN. Stauffer of the *Engineering News*, H. C. Myers, Ferdinand Yznaga, James T. Woodward, Mayer Lehman, E. F. Knowlton, W. H. Male, David H. Leggett, C. F. Watson, J. C. Donner, F. C. Mattheisen, G. O. Carpenter, A. Wagstaff, Theo. F. Jackson, Charles M. Englis, H. K. Knapp, Edwin J. Knauer, Joseph McGee, John Grogen, James Cassidy, John Mackie, Benjamin Wingrove, James Comiskey, Michael E. Clavin, W. H. Bradley, Col. E. D. Meier, A. L. Griffin, Capt.

William Henry White, Theodore Marvel, Walter E. Frey, E. C. Brown, J. Nelson Borland, H. A. Murray, George R. Turnbull, Joseph T. Brown, H. Vreeland, John Kean, Jr., W. G. Oakman, R. Somers Hayes, Daniel Lord, F. E. Martin, E. F. Hyde, George Sierman, H. C. Fahnestock, John P. Townsend, Robert Maclay, Edward King, Victor Morawetz, Arthur M. Dodge, A. E. Beach, Henry Steers, E. R. Reynolds, Major Henning, Walter Wood of R. D. Wood & Co., Philadelphia; L. R. Lemoine, Philadelphia; A. C. Humphreys, Philadelphia; Walton Clark, Philadelphia; G. J. Roberts, Philadelphia; Burr K. Field of the Berlin Bridge Co., East Berlin, Conn.

### "The Colossus of the Iron making World."

The American iron trade will find the following "blast" entertaining summer reading. It was "specially contributed" to an English contemporary, the *Iron and Coal Trades Review* of London.

The question has often been asked of late years, Shall British iron and steel manufacturers ever have to face the competition of the United States in foreign markets? A few years ago it seemed to be impossible that such an event could ever come to pass, but it has been brought much nearer of late years than it ever was before, and that mainly through the instrumentality of one firm, who are now ahead of all kindred firms, whether on the European or on the American continents. This firm are known as the Carnegie Company, and their various works are mostly centered in and around Pittsburgh. The Carnegie Company are hardly likely to enter European markets without making a notable impression on them, and for that reason it may be of interest to say something of their resources and its methods.

Andrew Carnegie entered the iron business as far back as the year 1860, when he and his partner, Harry Phipps, purchased the Keystone Bridge Works, near Pittsburgh, for the sum of \$1250, which they had to borrow. Mr. Carnegie was then about 26 years old, and his partner was little more than of age. The concern prospered, and they were able to go on extending their plant and production. During the next few years, while the civil war was in progress, they realized very large prices. The result was that they were able to extend their operations to the manufacture of rails, plates, and other descriptions of finished iron and steel. About 1870 they acquired the Edgar Thomson Works, on the Monongahela River, near Pittsburgh. Here they constructed one of the first Bessemer steel works erected on the American continent. One of their earliest acquisitions was the Beaver Falls Works, where they undertook the manufacture of wire rods and merchant steel, and at other subsequent periods they have either built or acquired the Homestead Works, the Duquesne Steel Works, the Lucy furnaces, and the Upper and the Lower Union Mills, at Pittsburgh. They are now able, at these several establishments, to produce nearly 1,500,000 tons of pig iron and more than 1,500,000 tons of merchant iron and steel per annum. They are also the largest owners of coal royalties in the Connellsville coking region near Pittsburgh, where they produce something like 2,000,000 tons of coke per annum. They employ over 25,000 hands in all their different un-

dertakings, and they pay upward of £60,000 a week, or £240,000 a month, in wages.

Compared with the Carnegie Company, neither the Krupp Works at Essen, nor the Schneider Works at Creusot—the largest establishments of their kind in Germany and France respectively—are of much account. The Carnegie Company produce almost as much pig iron as the whole of France, and more than twice the quantity of steel. They produced almost as much steel as the whole of Germany, and five or six times the production of Belgium; while they are looking forward to producing next year as much steel—Bessemer and open-hearth together—as the whole Bessemer output of the United Kingdom. The capital expenditure of this colossal concern amounts to more than six millions sterling, and Mr. Carnegie has been offered and has refused a sum of about ten millions sterling to buy up the whole enterprise.

The methods and policy whereby this gigantic business has been built are the outcome of the fertile brain and rare organizing and administrative power of one man. Andrew Carnegie has been the head, soul and mind of the company who bear his name for more than a quarter of a century. But he has, nevertheless, refrained from the drudgery that would almost naturally be expected from any one who accepted the responsibility of carrying on such establishments as Edgar Thomson and Homestead, and has passed a large part of his time each year in Europe. Krupp and Schneider inherited businesses that were built up for them mainly by the efforts of their fathers. The Dowlais Iron Works, the largest in Wales, were inherited by the present Lord Wimborne from wealthy ancestors, and the same remark applies to the great Gartsherrie Works of Baird & Co. in Scotland, while the Barrow Hematite Steel Works, the largest of their kind in England, were called into existence, not like Canning's new world, to redress the balance of the old, but to minister to the wealth of a ducal family that was already understood to be rich beyond the dreams of avarice. The case of Carnegie and his partner was different to all these. For some years after they had started business on their borrowed capital of \$1250 they had a hard struggle and one of them is accustomed to descant with something approaching enthusiasm on the many interviews that they had with the local bankers in order to "raise the wind." The most gigantic business of the kind in either ancient or modern times has, in point of fact, been established within 30 years or so by these young men who could not raise £300 between them. This business has prospered exceedingly where other businesses carried on along side and apparently in the enjoyment of equal advantages and resources have gone to the wall. It controls to-day both prices and production on the American continent, and is a permanent menace to the older iron industry of Europe.

How has all this been accomplished? Mainly by the adoption of and rigid adherence to three principles or methods, namely:

1. Giving a partnership interest in the business to such promising and capable young men as entered the service of the company.
2. Securing orders at any price rather than let them go elsewhere, and having an organization of competent agents all over the United States for the purpose of looking after orders.

3. Taking care to obtain the largest possible output from a given plant, and a given capital expenditure and a given outlay on labor, &c.

It is likely to appear all but incredible that the principal partner in this concern, even in its most struggling days, and when the greatest efforts were being put forth, was seldom on the spot, but left the work of administration and control to others. Mr. Carnegie's system has all along been to select men, mostly uncommonly young, for places of trust, but he did not give them half confidences or half responsibility. "Trust them all in all, or not at all," has been his motto. To what their interest and their application, however, he has given them a certain proprietary interest from time to time, until there are now 28 partners in the firm besides himself. The partnership, however, is not a permanent one, nor without limitations. On the contrary, the majority of the partners can always decide that any individual partner shall retire if his work is not satisfactory, and thereupon he is paid over the amount at which his interest stands in the books, or, in other words, at its par value. Several partners have had to retire in this way. Mr. Carnegie himself always retains about 60 per cent. interest in the whole concern, so that if its capital value be taken at £10,000,000—its value in the books is not nearly so much as this—the principal's interest, which, of course, gives him always a controlling voice, will not be less than £6,000,000. It is the interest of every one of these 28 partners to do his utmost for the prosperity of the concern. His whole fortune is embarked in it. The manager or superintendent in the Carnegie Company is not allowed to become interested in other concerns. His whole heart and soul is understood to be in the one business, and in that only. His only aim, his only interest and his only ambition is to make the Carnegie concern the first and the only one of its kind. The impulse of *amour propre* is the one that has chiefly stimulated the partners to the efforts they have undertaken and are making from day to day. "We must be, and we must remain, at the top," is the rule of action throughout the whole vast organization, and this applies equally to the manufacture of pig iron, of steel rails, of bridge work, of blooms and billets, of girders, beams and pillars, of armor plates and of ferromanganese, all of which are manufactured on a scale of exceptional, if not of unprecedented, magnitude. Hence, no one who has proved the possession of superior capacity is overlooked, and no one is long continued in a superior position whose capacity is doubtful.

Another feature of the Carnegie organization that strikes outsiders with admiration, and competitors with something akin to terror, is the fact that they are almost always fully employed. This is not a mere accident. It is the result of the most deliberate and settled policy, carried out with almost military precision and discipline. If any order is taken by another firm, no matter in what part of the country, or for what description of product, the agent of the company in the locality whence the order was issued is peremptorily asked, Why was not that order secured for us? Orders must be got, at whatever price. The general basis of the instructions given to the company's agents is, "Your affair is to get the orders; the price is ours. You cannot be made responsible for the price, but you are held responsible for losing the

order." In other words, the order has to be got at a good price if possible, but anyhow at a price. The trade of the whole American continent is treated in this way. The company have agents everywhere—mostly young, active, capable men—who are paid a good salary, not by commission, who are in constant touch with headquarters, and who know that a more than ordinarily comfortable livelihood is attached to their activity on behalf of the firm.

But the most important and determining feature of the whole organization is the system whereby the Carnegie Company are enabled to produce more cheaply than any other firm on the American continent. This has been accomplished mainly by two agencies—the first, by securing the largest possible output from a given plant, and the second by securing the command of cheap raw materials. When Mr. Carnegie commenced the manufacture of pig iron at Pittsburgh it was regarded as good work if 500 to 600 tons per week were got out of a single blast furnace. But by structural changes in the furnace, by a higher pressure of blast, and by other minor modifications, the production was increased step by step from 600 tons to 2500 tons per week, and this with very little increase in the cost of labor. The consequence has been that pig iron can be produced to-day in the United States for almost one third of what it cost only 25 years ago, and at this moment the Carnegie Company are producing hematite pig iron for \$10.50, or 43 shillings and 8 pence, per ton, which compares not unfavorably with the price at which iron of the same description can be produced in the principal districts of England. It has been the same with Bessemer and open hearth steel. When the Edgar-Thomson Bessemer works of the Carnegie Company were being built Bessemer steel rails were selling at more than \$132 per ton, and iron rails were about \$80. But for about a year past Bessemer rails have been produced at the Carnegie works for about \$17.50, or £3. 5/, per ton, and have been sold at \$20 to \$24. This remarkable reduction has been partly a function of the reduced price of pig iron, partly of the greater output secured from a given plant and labor outlay. In other words, the output per unit of capital and wages has been trebled, and even quadrupled. There is no concern in the world where production is carried on at such high pressure as at the works of the Carnegie Company. Every man is doing his "level best," and the system is so organized that the administration knows exactly what is being done by every man, whether on piece work or on day wages. Reports are made each day to the principals, which show specifically what each works, each furnace, and practically what each man has done. If the record of one day is not so satisfactory as that of another, explanations are demanded. If one works produces more from a given plant than another works, the better record is placed before the managers of the other as a standard to be aimed at. If one furnace fails to keep up to the standard attained by another, an inquiry is instituted as to the causes of the inferiority, and these are as speedily as possible got rid of. The very best that has been attained, or is believed to be attainable, by the command of practically unlimited capital, splendid organization, and high skill and experience, is held up before everybody concerned as the standard to be aimed at, and nothing short of that is accepted as satisfactory. Under

such a system, no one has a chance to fall much behind. The standard of quality and extent of performance are kept up throughout, and any falling away from that standard is at once detected, exposed, and made a matter of animadversion. In a word, good and efficient service is rewarded all along the line, and bad and inefficient service is got rid of.

The chief interest of all this for European industrialists lies in the threatened deluge of cheap American iron and steel. At the present time the Carnegie Company, paying almost double the wages that are paid in England, and drawing their chief supplies of iron ore from a distance of over 600 miles, are actually producing pig iron and steel as cheaply as they are being made in England. Hitherto, the company have found sufficient orders at home to keep their works pretty fully employed. But the company continue to extend their operations. At this moment they are building two new furnaces, which will add about 5000 tons a week, or 260,000 tons a year, to their output—almost as much as the largest output of any individual works in Great Britain, excepting perhaps two of the largest only. If the American market does not absorb this increased production, it is almost certain to be thrown upon the European markets—or, at any rate, on the Canadian and South and Central American markets, where England has hitherto had the principal share of the iron business. The policy of the organization is not likely to allow considerations of price to interfere with this result, and the profits which are realized at home are good enough, as a rule, to allow of a large remainder being sold elsewhere, if need be, at a loss, so long as the cardinal requirement of having the works fully employed is observed. The most formidable danger confronting the greatest of our industries at the present time is that threatened by the recent development of works established at a distance of several hundred miles from the American seaboard and controlled and administered by a single brain, which appears to the outside world to be enjoying the *dolce far niente* due to an exceptionally busy and successful life at the ancient seat of the Sackvilles in the county of Sussex, surrounded by vestiges of a now extinct iron industry, the collective products of which would hardly amount in a century to as much as the works which he has built up are producing every month.

Hemenway & Browne, 47 Cedar street, New York, have unofficial, although undoubtedly authentic, advices from Browne, Bêche & Co., their Valparaiso house, that the Mining and Metallurgical Exhibition, scheduled to begin September 1 in Santiago, Chili, will not open until after October 1. This exhibition is international in character and given under the auspices of the Chilean Government. For the purpose of attracting machinery suitable for developing that country's natural mineral resources, that Government has appropriated a large sum of money to defray transportation charges and land and sea journeys to and from Chili of workmen sent by exhibitors for installing and working the machinery and apparatus to be shown. W. R. Grace & Co. of this city were awarded the contract for carrying out and back the exhibits originating here. The four new steamers of the Merchants' Line, operated by W. R. Grace & Co.—viz., "Coya," "Capac," "Condor" and "Cacique"

—between New York and West Coast Pacific ports, have been making regular trips out and back now for over a year. They were built especially for this service.

### Puddling at Pittsburgh.

For some months past the colored puddlers in the employ of the Clinton Iron & Steel Company, at Pittsburgh, have been paid \$3.25 per ton for puddling. The same rate has also been in force for some months at the Vesuvius Iron & Nail Works of Moorhead, Brother & Co., Incorporated, whose plant is located at Sharpsburg, the principal product being skelp iron. At the Sligo Rolling Mills of Phillips, Nimick & Co., at Pittsburgh, the puddlers are paid \$3.60 per ton and a dividend of 10 per cent. at the end of each three months. This arrangement went into effect some months since, at a conference held between James M. Bailey, general manager, and the puddlers. The arrangement can be canceled at the expiration of any three months by notice from either side. The first three months expire on Thursday, the 19th inst., and in all probability the men will refuse to renew it, but will demand that they be paid \$4 per ton, which is the rate prevailing in all of the Pittsburgh mills, outside of the three noted above. If the men go out on strike they will probably be joined by the puddlers in the employ of the Clinton Iron & Steel Company, although that firm posted a notice in their plant on Saturday last, stating that on and after Monday, July 16, the wages of their puddlers would be the same as in force before March 16 of this year. Before this date puddlers were paid \$3.60 per ton, but were reduced 10 per cent. making the rate \$3.24 per ton. As stated above, the puddlers will likely reject the proposition of the firm, and unless paid \$4 per ton will go on strike. The Amalgamated Association is being held responsible for the pending trouble in these two mills, as it is known that some officials of the organization have been circulating among the puddlers of both concerns for some time and using every endeavor to have them go on strike unless they were paid \$4 for boiling which is the Amalgamated Association scale price. Considerable complaint has been made by other mills in the Pittsburgh and Mahoning Valley districts over the fact that they were compelled to pay \$4 for boiling, while the above concerns paid considerably less. As a result of this, the Amalgamated Association has taken a hand in the matter and will endeavor to make the \$4 rate uniform throughout the Pittsburgh and other Western districts.

### PERSONAL.

The 4000 employees of Bell Brothers, Limited, iron masters, mine owners, &c., have just been testifying their appreciation and respect of the well-known head of the firm, Sir Lowthian Bell, by presenting him with an address of congratulation on the firm attaining their fiftieth anniversary. The *Ironmonger* reports that the presentation took place on Saturday, at Rounton Grange, the beautiful residence of Sir Lowthian, when officials and representatives of workmen of the firm to the number of upward of 200 were present. Sir Lowthian, in addressing the company, mentioned that during

the 50 years of the firm's existence they had used at their various works no less than 74,000,000 tons of minerals.

Clifton B. Beach, founder and late manager of the H-P Nail Company, is the Republican nominee for Congress in the Twentieth Ohio district.

Charles H. Morgan of the Morgan Construction Company, Worcester, Mass., will probably sail for Europe toward the end of this month. He will attend the coming meeting of the Iron and Steel Institute.

Phil. R. Jennings of the firm of Bruce & Cook, New York, returned last Saturday, by the "Campania," from a two months' tour in England and the Continent of Europe. In the course of his travels Mr. Jennings visited the South Wales tin plate districts and obtained a good insight into the condition of affairs there. He describes general trade in England as being fully equal in point of depression to that of this country.

### New Publications.

THE MINERAL RESOURCES OF THE UNITED STATES. Calendar year 1893. By Dr. David T. Day, United States Geological Survey, Washington, 1894. 810 pages. Price, 50 cents.

The tenth in the series of statistical volumes published since 1882 by the United States Geological Survey has just been issued by Dr. David T. Day, the geologist in charge. The merit of the report has been so thoroughly established during the past decade that it needs little more than the announcement that it is available to those who are interested in the mineral resources of this country. As usual, the report presents statistics relating to all the metals and to the minerals produced in the United States. The leading industries are watched by experts who have had many years of experience in the work, and the figures which they collect have all the authority which long confidence in the ability and integrity of the specialist inspires. We know as a fact that a number of trading producers in some of the great branches of our mining industry decline to furnish data to unofficial compilers.

James M. Swank, general manager of the American Iron and Steel Association, contributes a review of the iron and steel industries during 1892 and 1893. The report on iron ores is from the pen of the well-known expert, John Birkinbine of Philadelphia. The chapter on coal has been contributed by E. W. Parker. Petroleum, coke, manganese and natural gas are again reviewed by Jos. D. Weeks, the leading statistical authority on the subjects named. Copper, lead and zinc are treated by C. Kirchhoff. The statistics relating to stone are presented by William C. Day. There are also chapters on nickel, tin, aluminum, asphaltum, abrasive materials, fertilizers, pyrites, mica, graphite, salt and mineral waters. An ample index and a series of diagrams accompany the volume.

The convention of the American Boiler Manufacturers' Association which was to have been held at Boston this week, has been adjourned until the fall at the call of the Executive Committee. The attendance at Boston was too small to carry the meeting through successfully.

## MANUFACTURING.

### Iron and Steel.

On Tuesday, the 10th inst., a break occurred in the strike among the employees of the National Tube Works Company, McKeesport, Pa., and a large number of men belonging to the mechanical department returned to work. At this time work is now going on steadily in the mechanical and sub-departments and the force of employees is being increased every day. The firm do not expect any trouble, as the men have returned to work voluntarily.

As already announced in these columns, Jennings Bros. & Co., Limited, of Pittsburgh, operating a sheet mill at Leechburg, Pa., have decided to run their plant with non-union men in the future. On Wednesday, the 11th, one sheet mill was put in operation with non-union men and is now running successfully. On Monday, the 16th inst., one black plate mill was also put in operation. In this connection the firm desire to state that they have no quarrel with organized labor, but decided to operate with non-union men simply for the reason that the Amalgamated Association insists that they sign the sheet scale for an entire year. The firm did not deem it prudent to sign for a year and so informed the officials of the Amalgamated Association.

On Thursday, the 12th inst., the Laughlin & Junction Steel Company, Mingo Junction, Ohio, manufacturers of Bessemer steel blooms, billets and nail slabs, arranged a steel scale with their employees, and their Bessemer plant will be put in operation as soon as a steady supply of Bessemer pig can be secured.

After a shut down of a week or so for repairs, the plant of the Scottsdale Iron & Steel Company, Limited, Scottsdale, Pa., manufacturers of iron and steel sheets, has again been put in operation.

Furnace B of the Monongahela Furnace Company, McKeesport, Pa., was put in operation last week. Furnace A is being relined and will be ready for blast within a few days.

Nearly all departments of the American Iron & Steel Works of Jones & Laughlins, Limited, at Pittsburgh, were started up on double turn last week.

At a conference held in New Castle, Pa., on Wednesday, July 11, between officials of the Shenango Valley Steel Company and their employees, a steel scale was arranged, and the plant of this concern will be put in operation just as soon as sufficient Bessemer pig has been secured.

Among contracts now in hand by the Shiffer Bridge Company, Pittsburgh, may be mentioned a rolling mill 292 x 142 feet for the Logan Iron & Steel Company, at Burnham, Pa. Wheel shop, machine shop and producer and boiler house for the Standard Steel Works, at Burnham, Pa.; iron work for the water works at Steubenville, Ohio, consisting of boiler and pump house roofs, and for an extension to the open hearth building of the Lukens Iron & Steel Company, at Coatesville, Pa., which will be 100 x 105 feet in size.

A number of changes have been made in the management of the upper and lower mills of the Union Iron & Steel Company, Youngstown, Ohio. Thos. Pollock, who has been superintendent of the lower mill, has been made superintendent of both mills, while Geo. E. Daniels, who has been boss roll turner at the upper mill, will hereafter be boss roll turner at both the upper and lower mills.

The Sylvan Steel Company of Moline, Ill., have placed with Alex Laughlin & Co. of Pittsburgh an order covering their entire equipment of furnaces, gas producers and flues, all of which will be of the most modern design.

At a meeting of the stockholders of the American Steel Castings Company, Chester, Pa., on July 12, Daniel Egan, late of the Sharon, Pa., Steel Works, was elected president, to fill the vacancy caused by the death of J. K. Bole. The directors chosen were Daniel Egan, W. N. Nelson, Charles Travilla, N. H. Larzerlere, Henry Weston, Frederick Frazer and Robert Wetherill. Mr. Wetherill was formerly the owner of the Standard Steel Castings Company's works of Chester, which were subsequently absorbed by the American Company, Mr. Wetherill receiving the entire issue of \$600,000 bonds of the American Steel Castings Company as the price of his works.

The Malleable Iron Works, to be operated in connection with the Whitley Implement factory, at Muncie, Ind., have been completed. When they are put in operation the old plant at Springfield, Ohio, will be closed. The new establishment starts with plenty of orders to fill.

Articles of incorporation for the Longmead Iron Company of Conshohocken, with a capital of \$100,000, have been filed in Harrisburg. The incorporators are Jawood Lukens, Albert L. Murphy, James E. Salter, Henry M. Tracy, Lewis N. Lukens. The company have purchased the rolling mill property of Jawood Lukens on Washington street, and will commence at once the erection of an additional rolling mill, 60 x 200 feet, for the manufacture of skelp or pipe iron. It is the intention to push the work as rapidly as possible in order to have the new mill completed and in operation some time in October.

The Sylvan Steel Company of Moline, Ill., have broken ground for the erection of a building 190 x 260 feet. As it will be constructed with steel frame work, which has already been prepared, the company expect to have the building ready for occupancy within 60 days.

The Rock Island Plow Company of Rock Island, Ill., are building an unusually substantial warehouse. It will be 90 x 88 feet, four stories high, and designed to support a load of 6.0 pounds per square foot. The walls are of brick and the inside work of Georgia pine. The windows are placed high in each story so that the wall space may be utilized for bins for small castings. The posts are set on one another, the cross beams being mortised in with a bevel joint.

The Danvers Iron Works of Sylvester & Co., Danversport, Mass., have been destroyed by fire. It was a small mill with three heating furnaces and two trains of rolls. The mill was largely used for rolling for the spike factory at Somerville.

The Wetherald Rolling Mill Company of Frankton, Madison County, Ind., have been incorporated, with \$70,000, and William M. Wetherald, H. O. Wetherald and A. D. Hilborn as directors.

At a meeting of the employees of the National Tube Works Company, held at McKeesport, Pa., on the 14th inst., it was decided by a vote of 738 to 313 to continue the strike, which was inaugurated nearly two months ago. In spite of this action it is likely an attempt will be made during this week to break the strike. As noted in our issue of last week, a number of employees in the mechanical departments have returned to work, and others are desirous of doing so if they are assured ample protection. The firemen and engineers reported for duty on Saturday last, and men from other departments are expected to apply for their positions during this week. The plant is now in charge of James F. Richards, Sheriff of Allegheny County, who has about 150 deputies on guard for the purpose of affording protection to all employees who desire to return to work.

The property of the Crane Iron Company, Catasauqua, Pa., is advertised to be sold on October 10 next at 12 o'clock, noon, at the Philadelphia Exchange.

No. 5 furnace of the Thomas Furnace Company, Hokendauqua, Pa., was blown out last week and No. 1 stack is expected to resume within a few days.

At Pittsburgh last week Col. J. Collard, assignee of the firm of James B. Scott & Co., tin plate manufacturers, who made an assignment in February last, filed a petition in court asking for an order transferring to him all the assets of that firm. He states that all the creditors, numbering over 100, have agreed to accept a compromise of their claims at 40 cents on the dollar, the claims aggregating \$199,389.35 and the amount to be distributed \$79,755.74. The order petitioned for was granted and the court will name an auditor within a short time. A plan is being considered whereby a reorganization of the firm will be brought about, with Mr. Collard as a majority owner of the stock.

#### Machinery.

The Kansas City Car & Iron Works Company have purchased 14 acres of land in Armourdale, a suburb of Kansas City, Mo., and will at once proceed to build a plant.

The Vulcan Iron Works, 86 North Clinton street, Chicago, are adding a new building, 125 x 90 feet, to their establishment. The

enlargement was needed in order to keep pace with the growth of their business. They have just sold a set of their No. 2 dredging machinery for the Pacific Coast, and among other important contracts will construct a larger lighthouse for the Chicago River, transferring the old one to Two Rivers, Wis.

Standard Mfg. Company, Holyoke, Mass., manufacturers of emery grinding machinery, have completed the remodeling of their line of machines and will soon issue a complete catalogue, which will be mailed to the trade on application. This concern recently purchased the Ulrich engine, formerly made by Hill Machine Company, Florence, Mass., and will continue to manufacture them, producing transmission engines from 2 to 50 horse-power and hoisting and yacht engines in a variety of sizes.

Worcester Machinery Company, Worcester, Mass., dealers in new and second hand machinery, will remove about August 1 from 95 Foster street to 86 and 88 Foster street, extending through to 10 Manchester street, where they will equip a machine shop for the building of special machinery and repair work.

The Cleveland City Forge & Iron Company, - Cleveland, Ohio, have recently shipped two cotton press links to Montgomery, Ala., which are said to be the largest ever made. They are 25 feet long and 8½ feet wide inside and weigh 28 tons. The same concern have just finished the forging of a shaft 38 feet long and 28¼ inches diameter, the weight of which in the rough is about 40 tons. They are also making a pair of very large cranks to go with it and a 21¼-inch open hearth steel shaft of about 25 feet length.

The Robinson Machine Company, operating an extensive plant for the manufacture of electric car trucks, at Belwood, Blair County, Pa., have made an assignment for the benefit of their creditors to Ira Wentzell and A. M. Robinson. The concern were incorporated in June, 1891, with an authorized capital of \$75,000. Just prior to the assignment judgment and execution went out for the sum of \$4357 in favor of H. A. Gardner. It is stated the liabilities will reach \$30,000, with assets nominally about the same.

The stockholders of the Springfield Coil Boiler Company, Springfield, Mass., held their annual meeting lately. The following Board of Directors was elected: O. D. Adams, O. H. Smith, A. M. Cushing, T. L. Haynes, B. F. Steele, W. O. Collins, J. C. Ingersoll.

The new shop of the Warren Foundry & Machine Company, at Easton, P., has been completed.

The Mansfield Machine Works of Mansfield, Ohio, have concluded negotiations by which they add to their present line of business the building of hand, steam and electric cranes of all descriptions. The new line of work will be under the supervision of William H. Thompson, general manager of the Phoenix Hand & Power Crane Company of Cleveland.

The Electric Mfg. & Gas Engine Company of Greenbush, N. Y., have gone into liquidation. The receiver is James H. Pratt. Indebtedness, \$47,394.42; value of assets about the same. The business will be wound up.

New England Car Coupler Company have been organized at Portland, Maine, for the purpose of manufacturing and dealing in railroad supplies. President, J. W. Fellows of Manchester, N. H.; treasurer, J. A. Hinson of Chicago, Ill.

The Tamaqua Mfg. Company are erecting new shops at the eastern end of Tamaqua, Pa.

The Snowden & Cowman Mfg. Company have been incorporated at Baltimore, Md., for the manufacture of steam engines and other machinery, by Charles H. Cowman, Mary V. Cowman, Richard P. Thomas, Harry A. Bersch, Henry Snowden Cowman and Augustine deK. Sappington.

The new plant of the Westinghouse Electric & Mfg. Company now in course of erection at Brinton, Pa., near Pittsburgh, will be formally dedicated early in September. It is claimed that the new works when completed will be the largest of their kind in the world.

The annual meeting of the Gartland Foundry Company, Cleveland, Ohio, was held on July 9, and the following officers were re-elected: T. H. Gartland, president; E. Joseph, vice-president; P. H. Lavan, secretary; C. M. Miller, treasurer.

#### Hardware.

The Wyckoff Harvester Company, who are soon to remove their plant from Perry to Jamestown, N. Y., have bought a tract of 6 acres of land in the eastern part of that place, and will within a few days commence the erection of a large plant, the buildings to be of brick and stone.

McCord & Co.'s handle works, at La Fontaine, Ind., were totally destroyed by fire on the morning of the 27th ult. Loss, \$10,000; insurance, \$4000.

F. E. Myers & Bro., Ashland, Ohio, advise us that while trade conditions and results have been unsatisfactory they have been running full force, and unless the present strike shuts off supply and outlet entirely they will continue to do so through the entire year.

The Perfection Nut Lock Company of Fordyce, Ark., have filed articles of incorporation. The capital stock of the company is placed at \$100,000.

The Portland Wringer Company have been organized at Portland, Maine. The capital stock is \$100,000. William I. Alden is president of the company and Robert E. Alden treasurer.

The Eclipse Bicycle Company, Beaver Falls, Pa., manufacturers of high grade bicycles, advise us that the statement that they were at work on a bicycle of entirely new design and one that differed very much in construction from the bicycle of to-day, is entirely without foundation.

The Marion Tool Company are arranging to build a plant at Marion, Ohio, to manufacture edge tools by a process invented by one of the company for making steel from cast iron. Experiments, which are stated to have been successful, have been made with the process at one of the local works.

The Marion Hedge & Wire Fence Company will establish a factory at Marion, Ohio. They have been incorporated, with a capital stock of \$60,000. Fred. Haberman is president, L. Reber vice president, H. R. Young secretary, U. K. Guthery treasurer, L. T. Goodnow manager.

#### Miscellaneous.

The Fox Solid Pressed Steel Company of Joliet, Ill., have received an order from the Delaware, Lackawanna & Western Railroad Company for 4000 pressed steel car trucks, to be used on coal cars. The contract price is stated to be \$235,000. The news of the receipt of the order caused great rejoicing in Joliet, as it means the employment of a much larger force of men in the company's works.

Last week a charter was granted to the McGinness-Smith Company of Pittsburgh, with a capital stock of \$100,000. The new concern will engage in the manufacture and sale of all kinds of steam heat, hot water and air heating and ventilating apparatus. The directors are Wm. K. McGinness, Allegheny, Pa.; Robert S. Smith, Jos. A. Langdon, Wm. F. Hughes and R. Munroe. This new concern will succeed the present firm of McGinness, Smith & Co., engaged in the same line of business at Pittsburgh.

Among recently licensed corporations in Illinois are the following: Walters Perfect Combustion Furnace Company, Chicago; capital stock, \$200,000; incorporators, William Walters, James P. Moulton, George W. Mahoney. Imperial Ball Bearing Axle Company, Chicago; capital stock, \$10,000; incorporators, Edward E. Elliott, William Brace and John G. Campbell. Kirk's Cornice Works, Chicago; capital stock, \$10,000; incorporators, Edward Kirk, Jr., Eli A. Rysdon and Pulhemus S. Hudson. Schneider Permutation Lock Company, Galena; capital stock, \$25,000; incorporators, Leopold E. Schneider, Adam J. Fetz, Philip Keebler and Claus J. Clausen.

Cutter, Wood & Stevens of 131 Pearl street, Boston, Mass., announce that the business as manufacturers of grinding, polishing and electroplating machinery and supplies formerly carried on by Cutter & Wood, will be continued under the style of Cutter, Wood & Stevens, Frederick J. Stevens, for the past 20 years in the machinists' supply trade, having been admitted as a partner. Besides the line of goods carried by the old firm, there will be added a stock of machinists' supplies.



# The Iron and Metal Trades.

The Iron trade continues exceedingly dull throughout the whole country. The demand is still very slow so far as Finished Iron and Steel is concerned, and that causes indifference to the scarcity in some sections of Pig Iron and Soft Steel.

The dominant factor at the present time is the continued delay in the resumption of full work in the Connellsville region; in fact, it has been frequently hinted that the leading Coke interest is in no hurry to supply the market. As it is, Pittsburgh is getting a steady supply, while the valleys and Wheeling have either no Coke at all or are getting very little. The result is that Bessemer Pig and Soft Steel continue scarce, and that the prompt decline expected by so many is not in sight for this month or for August.

The Chicago district has been able to take advantage of this situation and has been reaching further East for Soft Steel than it has done for a long time past.

The following figures relating to the Steel Rail trade are interesting because they illustrate in a striking manner how great has been the shrinkage in the demand for Iron and Steel on the part of the railroads. If data relating to bridge building, locomotive and car building and to supplies generally were available, they would fully confirm the teachings of the statistics of Rail sales and deliveries.

Poor as was last year for the Rail mills, this year is even worse. During the first six months of 1893 the Rail shipments were 571,884 tons, while the sales aggregated 745,191 tons. During the first half of the current year the total deliveries were only 340,000 tons and the total sales 502,000 tons. Last year the three Western mills, counting Cambria among them, shipped 323,314 tons. This year their total is only 181,000 tons, and curiously the two largest delivered practically the same quantity, 85,000 tons, while their sales were nearly alike, 145,000 and 140,000. The largest business was done by the Lackawanna Company, which took orders aggregating 156,000 tons and shipped over 120,000 tons.

When it is considered that the normal renewal demand of the railroads of this country must be 900,000 to 1,000,000 tons annually, the restriction in the requirements this year will be appreciated. It is a fact, too, that so far as the East is concerned, the requirements for this year have been pretty well covered, and that the natural territory of the Eastern mills will furnish very little more work this year. The situation is probably better in the West. Yet one great Southwestern system which has a contract for 50,000 tons with a Western mill has not yet drawn upon it at all.

## Chicago.

(By Telegraph.)

Office of *The Iron Age*, 59 Dearborn street, }  
CHICAGO, July 18, 1894. }

The railroad situation is gradually mending. The sympathetic strike of the general trades proved to be a fiasco, and matters are again assuming their normal shape. It will take some little time, however, for the railroad companies to get into smooth running order. Freight departments are moving more slowly than passenger departments, but local manufacturers whose works had been stopped are arranging to start up again and some will resume this week.

**Pig Iron.**—Very little new business was entered by any of the Iron houses here during the past week, but some large orders are still in sight, which are expected by the local furnace companies, that have been postponed for various reasons. For the present matters are extremely quiet. Shipments are still interfered with as a result of the strike, and it will require a week or more to get everything into proper condition. The dullness extends to all classes of Iron, including Southern Coke and Lake Superior Charcoal. Quotations are given as follows for cash:

Lake Superior Charcoal.....	\$14.50	@	\$15.50
Local Coke Foundry, No. 1.....	10.75	@	11.00
Local Coke Foundry, No. 2.....	10.00	@	10.50
Local Coke Foundry, No. 3.....	9.50	@	10.00
Local Scotch.....	10.75	@	11.00
Ohio Strong Softeners No. 1.....	13.00	@	13.50
Southern Silvery, No. 1.....	.....	@	.....
Southern Silvery, No. 2.....	.....	@	.....
Southern Coke, No. 2.....	.....	@	10.75
Southern Coke, No. 3.....	.....	@	10.50
Southern, No. 1 Soft.....	.....	@	10.75
Southern, No. 2 Soft.....	.....	@	10.50
Tennessee Charcoal, No. 1.....	.....	@	.....
Tennessee Charcoal, No. 2.....	.....	@	.....
Alabama Car Wheel.....	17.50	@	18.00
Jackson County Silvery.....	15.00	@	16.00
Coke Bessemer.....	11.25	@	11.50
Malleable Bessemer.....	11.75	@	12.00
Other Ohio Silvery.....	14.00	@	14.50

**Bars.**—The local mills report a light demand and very small sales. Even contracting is limited at present. Only one good sized season contract is known to have been placed during the past week. The Valley mills report business picking up a little with them and more inquiries, as their trade extends over a wider section. The East Chicago mill starts up to-morrow. Prices appear to be a trifle firmer and manufacturers believe that if there is any revival of business whatever values must advance. Mill shipments of Common Iron made from Old Rail mixture are now quoted at 1.10¢ @ 1.25¢. Soft Steel Bars from strictly Billet stock are still quoted at 1.30¢ @ 1.35¢, Chicago. Small lots from store are quoted at 1.25¢ upward for Iron and 1.40¢ upward for Soft Steel Bars.

**Structural Material.**—The local Beam yards are now in receipt of stock from the mills, but shipments are still very slow and the assortment of sizes on hand is badly broken. The prospects for business are fair. Several new buildings are now coming into the market requiring considerable quantities of Shapes. Bridge works are also getting ready to start and are beginning to press manufacturers for shipments. Quotations on mill shipments, Chicago delivery, are as follows: Beams and Channels, 1.50¢; Tees, 1.65¢; Angles, 1.45¢; Universal Plates, 1.45¢. Small lots from stock sell at 1.90¢ @ 2.25¢ for Beams and Channels; 1.50¢ @ 1.60¢ for Angles, and 1.70¢ @ 1.80¢ for Tees.

**Plates.**—Dullness rules throughout this trade and very little business

is reported from either mill or store. Mill shipments, Chicago delivery, are quoted as follows: Tank Steel, 1.45¢ @ 1.55¢; Flange Steel, 1.65¢ @ 2.10¢; Fire Box, 1.65¢ @ 5¢. Store prices are as follows: Iron or Steel Sheets, Nos. 10 to 14, 1.80¢ @ 1.90¢; Tank Steel, 1.65¢ @ 1.85¢; Flange Steel, 2.10¢ @ 2.35¢; Boiler Tubes, in carloads, 70 % @ 75 % off.

**Sheets.**—Inquiries are being received by mill agents for both Black and Galvanized Sheets, but business has been rather light for some time past. Mill shipments are quoted at 2.40¢ @ 2.45¢, Chicago, for No. 27 Common, 2.50¢ @ 2.55¢ for No. 27 Soft Steel, and 75 and 10 % discount on Galvanized Sheets. Sheet Copper stands at 14¢, with no discount. Small lots from stock are quoted at 2.70¢ @ 2.75¢ on No. 27 Common; 3.30¢ on Wood's Smooth Iron, and 15¢ @ 100 less for factory shipment for delivery on or before September 1. Small lots of Galvanized Sheets are quoted at 75 and 5 %.

**Merchant Steel.**—The placing of season contracts continues, but buyers are still manifesting no special hurry in closing. Mill shipments, Chicago delivery, are quoted as follows: Smooth Finished Machinery Steel, 1.65¢ @ 1.75¢; Smooth Finished Tire, 1.60¢ @ 1.70¢; Open Hearth Spring Steel, 1.85¢ @ 1.90¢; Bessemer Machinery, 1.50¢ @ 1.55¢; Bessemer Tire, 1.40¢ @ 1.45¢; Ordinary Tool Steel, 6¢ @ 7¢; Specials, 12¢ and upward.

**Billets and Rods.**—No new developments have occurred under this head. Quotations continue at \$18.25 @ \$18.50 for Billets and \$25 @ \$25.50 for Wire Rods.

**Rails and Track Supplies.**—While a few orders have been entered for Steel Rails since our last report, the aggregate business has been small, owing to the forced closing of the mills and the difficulty of naming a definite time for shipment. Inquiries are now coming in again and the prospects are good for the placing of considerable tonnage within the next week or two. Quotations are continued as follows: Standard Rails, \$25 @ \$27; Steel Splice Bars, 1.25¢ @ 1.35¢; Track Bolts, with Nuts, 2.10¢ @ 2.15¢; Spikes, 1.75¢ @ 1.80¢; Links and Pins, 1.65¢ @ 1.70¢.

**Old Rails and Car Wheels.**—Old Iron Rails may be quoted at \$10.50 @ \$10.75 and Old Steel Rails at \$6.75 @ \$9.50, according to length; but no transactions are reported. A sale of 500 tons of Old Car Wheels has been made at about the long quoted price, which is \$10 @ \$10.50.

**Scrap.**—Dealers have done little or nothing within the past week. Some inquiries are noted. Dealers quote the following selling prices @ net ton: Railroad Forge, \$9; Dealers' Forge, \$8 @ \$8.50; No. 1 Mill, \$6.50; Pipes and Flues, \$6; Iron and Steel Axles, \$12.75 @ \$13; Heavy Cast, \$7 @ \$7.50; Stove Plate, \$5 @ \$5.50; Fish Plates, \$10; Horseshoes, \$9; Mixed Steel, gross ton, \$5.50.

**Metals.**—Carload lots of Lake Copper are quoted at 9.25¢, and Casting Copper 9¢ @ 9½¢. Spelter is looking a little better, and is now quoted at 3.25¢, with a good inquiry for future delivery. Manufacturers quote Pig Lead at 3.20¢, and report a good demand for spot. The large smelters in the West are now shut down, and if the tariff bill does not soon pass Lead will be extremely scarce

in consequence of the effort to keep down production until the future is absolutely certain.

A. H. Dunham and H. A. Forsyth have formed a partnership under the name of Dunham, Forsyth & Co., to succeed the firm of A. H. Dunham & Co., formerly located at 115 Dearborn street, Chicago. The office of the new firm is in room 1138 Chicago Stock Exchange Building, corner of La Salle and Washington streets. Mr. Forsyth was recently connected with the firm of Backman, Forsyth & Co., Medinah Building, now W. W. Backman & Co. The firm of Dunham, Forsyth & Co. will handle Southern Pig Irons, among which are the Rockwood and Citico brands, also Ohio Strong and American Scotch Irons and Ashland high silicon Silveries, Connells-ville Coke and Indiana and Illinois Coal.

Bowes & Iler, No. 5 Exchange, Grand Pacific Hotel, Chicago, have been appointed general agents for the Phillips Tin Plate Company of Philadelphia, manufacturers of Bright Tin and Terne Plates. F. K. Bowes and W. F. Iler are the members of the firm, both well known in the metal trades.

## Philadelphia.

Office of *The Iron Age*, 220 South Fourth St., PHILADELPHIA, Pa., July 17, 1894.

There is so little change in the condition of the market that it seems almost unnecessary to write a new report. The demand is about the same, prices are about the same, and orders in hand are not much changed, although there is more inquiry and more disposition to do business, which is believed to indicate some probability of a better business in the near future. It is very hard to get things started, however, and attempts to secure better prices meet with strenuous resistance. A little increase in the demand would probably turn the scale, and from present appearances this is about what the trade are warranted in expecting. Two or three weeks later on the situation will doubtless be more fully developed, but there is a growing conviction that the fall trade will bring in a considerable amount of new business, although with such an unsettled condition of labor in many departments it is not the time to be very confident in making predictions; all the same there is undoubtedly a better feeling, and the chances of improvement appear to be stronger than we have seen for a long time past.

**Pig Iron.**—The market is not active, but prices are very steady, and in spots are a trifle higher. The decrease in stocks shows that consumption is pretty well up to production, allowing for the increase during last month, and the probability of a similar increase during the current month. Since May 1 stocks appear to have decreased 330,000 tons, and although that was no doubt largely due to the shortage of fuel, it indicates that over 100,000 tons per week will be required to maintain the *statu quo*. This would be nearly 10,000 tons per week beyond the average of the past 12 months, which is pretty good evidence that there is some recovery from the depression, and a fair chance that there will be more as soon as things get settled down. Bessemer is specially scarce, and is hardly obtainable at any

price. Buyers would probably pay \$13.50 for prompt deliveries of standard Bessemer, but both here and in the West stocks are clean swept up, so that prices are a matter of opinion, rather than based on actual sales. Other descriptions are in small compass, but as the demand is light the meagerness of stocks has not been felt, as it may be later on. Prices, as we said before, are steady to firm, with the general range of quotations as follows for Philadelphia or equivalent points:

Bessemer.....	\$13.00 @ \$13.50
Standard No. 1 Foundry X.....	12.50 @ 13.00
Standard No. 2 Foundry X.....	11.50 @ 12.00
No. 2 Plain.....	10.75 @ 11.00
No. 1 Soft.....	11.50 @ 11.75
No. 2 Soft.....	10.75 @ 11.00
Standard Gray Forge.....	10.50 @ 10.75
Ordinary.....	10.25 @ 10.50

**Steel Billets.**—Business does not appear to have got under way as yet, although consumers are making inquiries as though they might become buyers at an early date. Prices are higher than they like (\$19.75 @ \$20), but as makers appear to be quite firm in their views there is no immediate prospect for lower prices. Deliveries on old contracts are being made to a fair extent, and when these are completed consumers may feel more disposed to enter into new engagements, but nobody wants large lots at prices above named, although with such a scarcity as there is consumers may have to pay higher than they expect.

**Finished Material.**—This end of the market remains in moderately good condition without being especially active and without any demand for large lots. The steady run of small orders, with some accumulation of back work, enables the mills to run fuller than they have done for some time, and as the West is less aggressive fairly good prices have been realized. This statement should, of course, be considered in a comparative sense, as the volume of business is far below the average of even ordinary times, but it is better than we have had lately and to that extent there is an improvement. At the moment there is no new business of importance in prospect and it looks as though the trade might for awhile have to run along as heretofore on day to day business, although there is more confidence in regard to the ultimate outcome than we have seen for a long time past. Prices for small lots are about as follows, but on large orders liberal concessions can be had for desirable specifications:

Grooved Skelp.....	1.25¢ @ 1.30¢
Standard Refined Bars.....	1.30¢ @ 1.40¢
Medium quality.....	1.20¢ @ 1.25¢
Tank Steel.....	1.35¢ @ 1.45¢
Heavy Plates.....	1.80¢ @ 1.40¢
Shell.....	1.50¢ @ 1.60¢
Flange.....	1.60¢ @ 1.80¢
Angles.....	1.40¢ @ 1.50¢
Beams and Channels.....	1.50¢ @ 1.60¢

Orders are on the market for 1500 to 2000 tons of local bridge work and it is thought that the material may be placed before the end of the week, but as so many bids are in prices will probably be very low.

**Old Material.**—There is a better tone to the market and sales are being made at a slight advance on figures recently ruling. General quotations about as follows (delivered):

Heavy Melting Steel.....	\$10.00 @ \$10.50
Light Melting Steel.....	8.00 @ 8.50
No. 1 Wrought Scrap.....	10.50 @ 11.00
Machinery Cast.....	9.50 @ 10.00
Wrought Turnings.....	8.00 @ 8.50
Cast Borings.....	6.25 @ 6.75
Old Iron Rails.....	11.50 @ 12.00
Old Car Wheels.....	9.50 @ 10.00

## Pittsburgh.

(By Mail.)

Office of *The Iron Age*, Hamilton Building, PITTSBURGH, July 17, 1894.

The settlement of the railroad strike at Chicago and the adjustment of several Steel scales in the Wheeling district and one in the Shenango Valley during the week practically removes all danger of further labor troubles in the West for this year, unless something unexpected comes up. The only thing standing in the way just now is the badly battered and disfigured tariff bill, and while it is the general belief that this measure will soon be passed, a local manufacturer who is in close touch with some leading politicians ventured the opinion the other day that Congress will adjourn without passing the bill, and that it will go over until fall. Nothing of interest in Iron and Steel circles developed during the week. Prices show little change either way with the exception of Bessemer Pig, which is firmer, due to the struggle in the Coke region, which shows no signs of early settlement. The demand for Finished Material is distressingly light, and while this is the dull season, the expected demand to develop after the starting of the mills has not been realized.

**Pig Iron.**—A perceptibly firmer feeling in Bessemer has developed during the week, and for July, August and September delivery \$12, Pittsburgh, is being asked, while for spot delivery \$12.50 is being readily obtained. The long struggle in the Coke regions, now about four months old, shows no sign of early settlement, and while Pittsburgh is faring pretty well in the matter of Coke the Valley districts are getting practically none, and the furnaces continue idle. Some complaint has been heard regarding the policy of a leading Coke maker who will agree to furnish Coke only to those furnaces that will give Pig Iron to an identified interest in return for it. There is some inquiry for Gray Forge for prompt delivery, with the supply very limited and prices firm on the basis of \$9.90 @ \$10, Pittsburgh. There is also very little demand for Foundry Iron for spot delivery, but the supply is very light and prices firm at \$11.75 @ \$12 for No. 1 and \$10.75 @ \$11 for No. 2. For forward delivery we quote as follows:

Neutral Gray Forge.....	\$9.85 @ \$10.00, cash
All-Ore Mill.....	9.75 @ 10.00 "
No. 1 Foundry.....	11.75 @ 12.00 "
No. 2 Foundry.....	10.75 @ 11.00 "
Bessemer.....	11.75 @ 12.00 "

We note a sale of 5000 tons for Bessemer for July, August and September delivery at \$11.75, Pittsburgh, and one of 4000 tons, same delivery, at \$11.85, Pittsburgh. Also a sale of 200 tons for July delivery at \$12.50, Pittsburgh, and a sale of 150 tons of Gray Forge at \$9.90, Pittsburgh.

**Ferromanganese.**—We continue to quote at \$53, delivered, for 80 % domestic.

**Billets.**—As noted last week, there is a little better inquiry for spot Steel, and for July delivery \$18 @ \$18.25 is being done, while for July and August delivery \$17.25 @ \$17.50 are the ruling prices. Practically nothing is being done in Steel for forward delivery, most of the mills being idle for want of Pig Iron, and are not anxious to name prices until they get started and get some of their old orders worked off. The Shenango Valley Steel Company and the Laughlin & Junction Steel Company have arranged their Steel



scales, and will start up as soon as they get Iron. We note sales aggregating about 800 tons of Billets for July and August delivery at \$17 35 at maker's mill; also a sale of 200 tons for spot delivery at \$18 25 at maker's mill.

**Plates.**—Mills have been badly hampered in shipments by the strike, but all the roads are now taking business as usual. The demand is altogether for small lots, with prices unchanged, but reported as a little firmer. We quote Tank Steel at 1.25¢ @ 1.30¢; Steel, 1 40¢; Flange, 1.45¢; Ordinary Fire Box, 2 1/4¢ @ 3¢; Railroad Fire Box, 3 35¢ @ 3.50¢, depending on size of the order.

**Structural Material.**—Nearly all of the large business for delivery during this year has been placed, but there is a continued good demand for small work. The two local mills are well fixed with orders and prices are being maintained on the following basis: Beams and Channels in round lots, 1.25¢ at mill. In small lots, 1.30¢ @ 1.40¢, according to order. We quote Angles and Universal Plates at 1.20¢ @ 1.35¢, according to order, and Tees, 1.35¢ @ 1.40¢.

**Muck Bars.**—We note a sale of 500 tons of standard grade at \$19.75, delivered at buyer's mill. There is very little demand.

**Bars.**—The railroads are again taking business for Western points. Some seasonal contracts for Steel Bars for agricultural makers are in the market, and a number have already been placed. Some makers are refusing to book contracts at prices which they would probably have accepted earlier in the year, and prices seem to be slightly firmer. Valley mills continue to ask 1.05¢ at mill for Iron Bars, half extras. Steel Bars of all Billet stock are held at 1.15¢, with Bar Iron extras.

**Sheets.**—As far as demand is concerned Sheets are in better condition than any other branch of the trade. Prices are firm, and the principal difficulty of the mills just now is to get Billets as fast as needed. Most of the mills have Steel due them on old contracts, but with most of the Steel plants closed for want of Iron they are unable to get it. As stated above, prices are firm and we quote No. 27 Iron 2.35¢ and Steel at 2.45¢. We quote Galvanized Sheets at 75 and 10 % discount.

**Merchant Steel.**—Season contracts are being taken up, but progress is slow, as buyers seem to be in no hurry to close up, and it is likely deals will hang fire this year longer than usual. We quote as follows: Bessemer Machinery, 1.35¢; Open Hearth Machinery, 1.45¢ @ 1.55¢; Open Hearth Spring, 1.65¢ @ 1.70¢; Tool Steel, 5¢ @ 7¢ for ordinary grades; extra grades, 11¢ @ 13¢.

**Wire Rods.**—We are not advised of any recent sales and omit quotations.

**Barb Wire.**—Some inquiries for fall delivery have been received, but makers are declining to quote so far ahead. The demand for immediate shipment is very light, with prices unchanged. We quote Four-Point Galvanized at \$2.10 and Plain at \$1.40, in carload lots.

**Wire Nails.**—The slightly improved demand noted last week continues, and owing to lightness of stock and the shutting down of a number of mills, prices are showing a firmer tendency. We quote at \$1 15 in carload lots for usual average s. The same remarks apply also to Cut Nails, which are firmer in price, with the demand moderate.

We quote at 95¢ @ \$1 for usual averages.

**Iron and Steel Skelp.**—There is nothing of interest to report, and we quote as follows: Grooved Steel Skelp, 1.10¢ @ 1.15¢; Sheared Steel Skelp, 1.20¢ @ 1.25¢; Grooved Iron Skelp, 1.20¢ @ 1.30¢; Sheared Iron Skelp, 1.35¢ @ 1.40¢, all four months or 2 % off for cash.

**Pipes and Tubes.**—The demand continues fairly large and the advanced prices are being firmly maintained. A start has been made at the plant of the National Tube Works Company and it is expected that the entire plant will be in full operation in a short time.

**Connellsville Coke.**—The strike situation in the Connellsville region shows no improvement, while at some plants shipments show a slight falling off. The old men persistently refuse to return to work and so far have resisted all overtures made to them. Coke making under present conditions represents an actual loss to the operators on every ton turned out.

The Juniata Iron & Steel Works of Shoenberger & Co., Pittsburgh, are in full operation with the exception of one blast furnace. The active departments include one blast furnace, Bessemer plant, blooming mill and horseshoe factory.

Julian Kennedy, consulting and mechanical engineer, of Pittsburgh, has closed a contract with the Ohio Iron & Steel Company of Lowellville, Ohio, for the erection of three Cowper-Kennedy hot blast stoves 18 x 70 feet in size.

## Cincinnati.

(By Telegraph.)

Office of *The Iron Age*, Fifth and Main Sts. }  
CINCINNATI, July 18, 1894. }

Business in Pig Iron has been much restricted by the railroad troubles during the week, but the offerings of Southern Iron were not large and sellers were indifferent about selling unless at pretty full previous prices. There were inquiries for round lots running from 500 to 5000 tons, but at such low prices that they could not be entertained. The effort in some Northern markets to discredit Southern Iron will avail nothing, for consumers must have it, and, while Northern Iron may for a time be sold at or below the cost of production, there is no doubt Southern Iron will be taken in the long run at prices satisfactory to producers. The principal sales during the week have been in a jobbing way only; there has been little demand from the East, but there have been moderate sales of Charcoal and other Malleable Iron to the Pittsburgh district. With the return of shipping facilities by rail there is likely to be an enlarged volume of business, as there certainly will be if the urgent efforts to break the market for Southern Iron should be successful. Quotations are as follows:

### Foundry.

Southern Coke, No. 1.....	\$10.25 @ \$10.50
Southern Coke, No. 2.....	9.50 @ 9.75
Southern Coke, No. 3.....	9.25 @ 9.50
Ohio Soft Stone Coal, No. 1....	14.50 @ 15.50
Ohio Soft Stone Coal, No. 2....	14.00 @ 14.50
Lake Superior Coke, No. 1.....	12.50 @ 13.00
Lake Superior Coke, No. 2....	11.50 @ 12.00
Hanging Rock Charcoal, No. 1..	16.00 @ 17.00
Hanging Rock Charcoal, No. 2..	15.50 @ 16.00
Tennessee Charcoal, No. 1.....	13.00 @ 13.50
Tennessee Charcoal, No. 2.....	12.00 @ 12.50

### Car Wheel and Malleable Irons.

Standard Southern Car Wheel	16.25 @ 17.00
Lake Superior Car Wheel and Malleable.....	16.25 @ 16.75

### Forge.

Gray Forge.....	8.75 @ 9.00
Mottled Coke.....	8.50 @ 8.75

## St. Louis.

(By Telegraph.)

Office of *The Iron Age*, }  
Bank of Commerce Building, }  
St. Louis, July 18, 1894. }

**Pig Iron.**—The local demand for Pig Iron is restricted almost entirely to carload lots. An occasional order for a 100-ton lot is received, but it is the exception rather than the rule. The stocks on the furnace banks are not large, and a slight improvement in the demand would quickly clear up all the Iron now in sight. The furnaces which are idle at present cannot be induced to blow in until the situation shows material change, so that there is not much likelihood of any large offerings. Prices are well maintained, and while, as above stated, stocks are not heavy, consumers have no difficulty in securing what Iron they need. We quote as follows for cash, f.o.b. cars St. Louis:

Southern Coke, No. 1 Foundry.....	\$11.00 @ \$11.25
Southern Coke, No. 2 Foundry.....	10.00 @ 10.25
Southern Coke, No. 3 Foundry.....	9.75 @ 10.00
Gray Forge.....	9.25 @ 9.50
Southern Car Wheel.....	16.50 @ 17.00
Ohio Softeners.....	14.25 @ 14.75

**Bar Iron.**—There is some improvement in the demand, and while there is no large business being placed yet the improvement is steady and bids fair to continue. Mills quote 1.15¢ for carload lots, f.o.b. cars East St. Louis; jobbers ask 1.30¢ @ 1.35¢, according to quantity.

**Barb Wire.**—There is not much business doing and there is no improvement expected until about September 1. Prices are well maintained, however, and are quoted as follows: Painted in carload lots, from mill, \$1.90, with 40¢ per hundredweight additional for Galvanized.

**Wire Nails.**—The demand has fallen off very materially and mills are only working part time. Mills quote \$1.20 @ \$1.25 for carload lots from mill, which price seems to be bottom.

**Rails and Track Supplies.**—There is no improvement to note in this department. The railroad strike has resulted in making railroads more economical than ever and this department will be sure to suffer in consequence. We quote as follows: Splice Bars, 1.35¢; Spikes, 1.75¢; Bolts, Square Nuts, 2¢; with Hexagon Nuts, 2.10¢; Steel Links and Pins, 1.65¢; Iron, 1.75¢. Steel Rails are nominally \$26 @ \$27, while Old Iron Rails are neglected at \$10, f.o.b. cars St. Louis.

**Pig Lead.**—There is very little doing in this metal, but the tone of the market is strong. Sales are made at 3.15¢ and bids of less are not entertained.

**Spelter.**—The output of Spelter has been restricted to such an extent that any improvement in the demand will likely find sellers short of stock to fill orders. Sales of several carloads are reported at 3.20¢, with offering of more at 3.25¢.

The Umbrella Trust has gone into the hands of receivers. The combination started two years ago, was never a success, and had obtained control of only about half the umbrella manufacturers of the United States.

## Birmingham.

BIRMINGHAM, July 16, 1894.

The strikes have assumed a stage at which it is impossible to prognosticate one day's results ahead, and the whole Iron situation is in a waiting stage. No further furnaces have been blown in and stocks are still further reduced. Demand, while very light, still exceeds supply in this district, and as a result orders continue to be refused daily. There are no sales reported for any lengthy delivery, nor is there much inquiry for such shipments. The greater part of shipments from here are Eastward, the Western markets being practically closed by the railroad strikes. Whatever orders come in are for carload lots. Soft Irons are still in demand and every effort will be to make this grade in preference to others. Owing to the demand being greater than the supply, operators are making every effort to better the conditions of their mining departments. The Tennessee Coal, Iron & Railway Company made an offer to their men at 35¢ per ton while No. 3 Foundry was at \$7, and to pay their men every two weeks in cash. This was refused by the men and the result will doubtless be increased efforts of the companies to get along with non-union white and negro labor. This is what some of the operators are making for anyhow and they will therefore not regret the misguided decision of the miners' union. This will, however, delay the starting of several furnaces. The railroad strike has done severe damage to the wholesale Hardware trade and allied interests among the fruit growers, who at this time usually become heavy buyers, but who have suffered so severely that already cancellations of orders are reported and heavy loss of business is becoming a certainty. So much for the benefits to the poor man of sympathetic strikes.

By the by, direct representation in Pig Iron selling departments is coming to the foreground, and it behooves the agencies to mend their ways and favor the furnaceman who pays them all they get, instead of showering all his benefits into the lap of the buyer. A word to the wise is sufficient. Quotations range higher; furnaces are asking from 50¢ @ \$1 above market for future small deliveries, though as yet without success. It must, however, take but a slight impulse to start an upward movement. As a matter of fact quotations are now 75¢ @ \$1 above what they were early this year. No. 2 Foundry and No. 1 Soft are quoted at \$7 50; No. 3 Foundry, \$7; No. 2 Soft, \$7 25; Gray Forge, \$6.75.

Warrant Irons are about stationary. The objection made by many that in times of depression warrant yards will be filled and be a menace when stocks are low and prices have a chance to advance has so far not been based on facts. Much of the warrant Iron has been put in at \$10 and \$11. There have recently been some inquiries from Scotland for large blocks of Iron to be bought and placed in warrant yards for speculative purposes.

There is a revival in rumors regarding Sheffield and Florence furnaces starting up. If these plants could satisfactorily settle the Coke supply, they should be able to hold their own in competition, as they have brown Ores of excellent quality and large quantity near by, and also very fine limestone for flux. Their water transportation should also give them advantages.

(By Telegraph.)

JULY 18.—The miners were fired on by strikers yesterday at Nos. 3, 4 and 5 Pratt mines, as they came to work. One officer, two negro miners and three strikers were killed and more are supposed to have been killed but have not been found yet. The soldiers are now at the mines and all is quiet. Excitement is at a high pitch. Forty-five of the strikers have been arrested and are in jail. There is positive identity as to some of them. All is quiet.

## New York.

Office of *The Iron Age*, 88-102 Reade street, }  
New York, July 18, 1894. }

**Pig Iron.**—The light demand seems to make impossible an advance which would otherwise follow the heavy restriction of the output. We quote standard brands \$12.50 @ \$13 for No. 1; \$11 @ \$12 for No. 2, at tide-water. Southern Iron, same delivery, \$11.50 @ \$12.25 for No. 1; \$10.50 @ \$11 for No. 2; \$10 @ \$10.25 for No. 3; \$10.25 @ \$10.75 for No. 2 Soft, and \$10.50 @ \$11 for No. 1 Soft. Foundry No. 4 (Foundry Forge) is \$9.75 @ \$10.25.

**Cast Iron Pipe.**—A number of small contracts are coming up. At the letting of 1600 gross tons of Pipe for Albany, R. D. Wood & Co. secured the order at \$20.70 per gross ton and 2½¢ for specials. Henry M. Warren & Co. of New York bid \$21.67 and the Anniston Pipe Works \$22.25. At Northumberland, Pa., Jackson & Woodin bid \$18.50 per net ton for a lot of 800 tons, the Radford Company bidding \$18.80.

**Spiegeleisen and Ferromanganese.**—The market is dull and no transactions of any consequence are noted. Foreign Ferromanganese is nominally \$52.50 @ \$54 for 80%. The English newspapers report that Ebbw Vale has started the manufacture of Ferro and Spiegel.

**Billets and Rods.**—The market continues very quiet. We note a sale of 400 tons of foreign Rods for Canada at private terms. The market for domestic is dull at \$19.50, tidewater, for Billets, and \$26.75 @ \$27 for Wire Rods, tidewater.

**Steel Rails.**—There is nothing doing.

**Track Material.**—We quote as follows for small lots: Spikes, 1.50¢ @ 1.70¢; Fish Plates, 1.20¢ @ 1.40¢; Track Bolts, Square Nuts, 2¢ @ 2.10¢, and Hexagon Nuts, 2.10¢ @ 2.30¢, delivered.

**Manufactured Iron and Steel.**—Business is very light, and is confined entirely to small lots for quick delivery, which the Eastern mills take. The only large building which will be contracted for at an early date is the Presbyterian Home. Plates are weak and Bars are dull. We quote: Beams up to 15-inch, 1.40¢ @ 1.50¢ for round lots; Angles, 1.30¢ @ 1.35¢; Universal Mill Plates, 1.25¢ @ 1.35¢; Tees, 1.50¢ @ 1.60¢; Channels, 1.40¢ @ 1.50¢, on dock. Steel Plates are 1.35¢ @ 1.40¢ for Tank; 1.45¢ @ 1.50¢ for Shell; 1.60¢ @ 1.65¢ for Flange, and 1.75¢ @ 2¢ for Fire Box, and 2¢ @ 2.25¢ for Locomotive Fire Box, on dock; Refined Bars are 1.20¢ @ 1.9¢, on dock, and Common 1.10¢ @ 1.20¢; Soft Steel Bars are 1.20¢ @ 1.30¢; Scrap Axles are quotable at 1.35¢ @ 1.50¢, delivered; Steel Axles, 1.35¢ @ 1.50¢, and Links and

Pins, 1.40¢ @ 1.60¢; Steel Hoop<sup>8</sup>, 1.40¢ @ 1.50¢, delivered; Cotton Ties, 70¢ @ 75¢ per 45-lb bundle, tidewater; Machinery Steel, 1.20¢ @ 1.40¢; Toe Calk, 1.75¢ @ 1.90¢, and Sleigh Shoe, 1.60¢ @ 1.75¢, delivered.

## Metal Market.

**Pig Tin.**—In the face of rather adverse statistical exhibit, prices for prompt and current month delivery have been remarkably well held, superficially at least. The holding, as reflected in quotations for public distribution, is somewhat in contrast with the true situation, however, and affords some reason for the opinion that quotations have been made on convenient occasions to serve particular interests, chiefly for effect upon the out of town trade. This may not have been prearranged, but it is none the less suggestive. Thus, a sale was officially recorded on Tuesday of 5 tons at 19.25¢ for July delivery, while Wednesday's record was 80 tons at from 19.15¢ down to 19.05¢. August delivery was offered at 19.10¢, without takers, and small quantities put out at figures remarkably close to the official rates. Shipments from the Straits during the first half of the month amounted to 2150 tons. This included 1000 tons to Great Britain, 800 tons to the United States and 350 tons to the Continent. During the corresponding period last year 1525 tons were sent out from the Straits. There has been received since the first of the month about 1000 tons, and it is clear that the stock in first hands has accumulated to greater or less extent. This and the liberal amount of stock afloat from producing points, along with uncertainty as to what England may ship to this quarter, gives the market anything but a strong appearance. There are now at least 20,000 tons in sight for Europe and America; in other words, the equivalent of four months' consumptive wants on a liberal estimate. There is only a very narrow speculative interest in the market here.

**Copper.**—Only routine trades of comparatively small dimensions have been made here of late, and the demand is extremely tame. Deliveries on old orders are taking care of the greater part of the supply that comes forward, however, and affairs are thereby so adjusted that prices remain very steady. The range quoted is 9.15¢ @ 9.25¢ for Lake Superior Ingot, 8.75¢ @ 9¢ for Electrolytic and 8.60¢ @ 8.90¢ for ordinary casting stock.

**Pig Lead.**—Single carload lots of common Western have realized 3.50¢ @ 3.55¢ on spot and for immediate delivery. The sales have been moderate, however, and now that transportation facilities are better the tendency is to seek business at prices somewhat under popular quotations. Thus offers were made to take August contracts at 3.40¢ and later deliveries at 3.35¢, chiefly upon the presumption that there will be an abundance of Lead during the autumn months. On the surface the offering of futures appears to be largely speculative, but there is some reason to believe that probabilities are being liberally discounted.

**Spelter.**—The prices for ordinary Western have not varied much. The inside figures are 3.50¢, and it is only in the case of exceptionally fine brands that a better price than 3.55¢ has been realized. Still a certain element in the trade continue to quote low, and the market is thereby unfavorably influenced to greater or less extent.

**Antimony.**—There has been nothing doing in this line outside ordinary jobbing distribution, and prices are soft at 8½¢ @ 8¾¢ for Hallett's, and 10¢ for Cookson's in round lots.

**Nickel.**—Quotations stand at about 40¢ @ 45¢, as to brand and size of lot.

**Tin Plate.**—Merely routine trade in spot goods has been effected and that was chiefly at prices that have ruled for some time past. Operations in futures have been slow and buying interest is tamer, if anything, than usual at this season of the year. Prices are without radical change, but rather soft. On spot stock the quotations are as follows: Charcoal: Melyn grade, IC, \$6.25; do., Melyn grade, Crosses, \$7.75; do., Allaway grade, IC, \$5.40; do., Allaway grade, Crosses, \$6.45; do., Grange grade, IC, \$5.50; do., Grange grade, Crosses, \$6.60; do., Terne, M.F., 14 x 20, \$7.25; do., M.F., 20 x 28, \$14.50; do., Worcester, 14 x 20, \$5.70; do., 20 x 28, \$11; Alyn grade, 14 x 20, \$5.15; do., 20 x 28, \$10 @ \$10.25; D. R. D. grade, 14 x 20, \$4.90; do., 20 x 28, \$9.70. IC Coke: Penlan grade, \$5; do., J. B. grade, 14 x 20, full weight, \$5.15; do., 100 lb, \$4.75; do., 95 lb, \$4.62½; do., 90 lb, \$4.55. IC Bessemer Steel, Coke finish: 14 x 20, full weight, \$5.12½; do., 100 lb, \$4.70 @ \$4.75; do., 95 lb, \$4.60; do., 90 lb, \$4.50. IC Bessemer Steel, Coke finish, sq., \$5.30. IC Siemens Steel, Coke finish, sq., \$5.45. Wasters: S. T. P. grade, 14 x 20, \$4.60; do., S. T. P. grade, 20 x 28, \$9; do., Albearne grade, 14 x 20, \$4.90.

The monthly production of Copper in the United States has been as follows, according to John Stanton, the first column giving the aggregate returns from the reporting mines, which include the principal Lake, Montana and Arizona producers; the second being the metal from pyrites and from a number of smaller outside sources, being estimated:

American Product.			
	Reporting mines. Gross tons.	Outside sources. Gross tons.	Total. Gross tons.
Second half 1892.....	59,239	6,287	65,526
First half 1893.....	62,470	6,478	68,938
Second half 1893.....	67,290	6,252	73,542
Totals 1893.....	129,760	12,730	142,490
1894.....			
January.....	10,832	1,340	12,172
February.....	10,245	1,340	11,585
March.....	13,759	1,340	15,099
April.....	12,475	1,340	13,815
May.....	12,668	1,340	14,008
June.....	13,972	1,340	15,312
First half, 1894.....	73,951	8,040	81,991

The product of the foreign reporting mines and the United States exports was as follows:

	Foreign reporting mines. Gross tons.	United States exports. Gross tons.
Second half 1892.....	39,655	17,980
First half 1893.....	41,048	20,361
Second half 1893.....	40,647	60,031
Totals 1893.....	81,495	80,392
1894.....		
January.....	8,145	7,717
February.....	7,217	5,590
March.....	6,922	7,137
April.....	7,385	6,200
May.....	8,013	6,140
June.....	7,611	6,976
First half 1894.....	45,293	39,709

## Financial.

The collapse of the great strike movement and the removal of nearly all impediments to transportation have resulted in a marked clearing of the business atmosphere since the opening of the current week. Acute observers in the financial world discern, in the Debs fiasco, a culmination of the series of disturbing influences which have so seriously affected the trade and commerce of this country for more than a year past. The silver agitation, the tariff bill, anxiety in regard to the condition of the country's treasury and her credit, labor troubles in many quarters and a hundred and one minor factors, have all contributed to induce or foster the feelings of uncertainty and unrest which have demoralized trade and enterprise and thrown the country into the condition of commercial depression and comparative industrial stagnation under which she has been laboring for so many weary months. The ordeal, however, seems now to be past. The threatening industrial uprising which has just been so effectively checked by the prompt and wise action of the Government, backed by the approval of the great mass of law-abiding people, has, like a great thunderstorm, cleared the sultry air. The business world is beginning to breathe easily again, and to look forward with hope to the advent of better times. True, the reputed disagreement of the Conference Committee now considering the tariff bill may prove a source of discouragement in business circles, but the indications point to a growth of confidence and trade activity from this time forth, provided that no other unlooked for disturbance arrives on the scene. The promise of abundant crops will be a great source of encouragement to the revival of trade, the bearing of agricultural prosperity on the general business of the country being so all-important. The process of repair and building up of the fabric of trade will of necessity be gradual; but, once begun, it should go on steadily to perfection.

The position of the Treasury has been strengthened materially during the first half of this month, as regards its available balance, by heavy receipts from internal revenue, largely on account of withdrawals of whisky from bond. The total receipts of internal revenue to July 14 reached \$15,000,000, which is about equal to the amount usually collected for an entire month. Treasury officials are, moreover, looking for increased receipts from this source during the remainder of the month, and believe that the monthly debt statement of July will show a margin of \$5,000,000 above that of June. The Treasury balance held on Tuesday was \$115,000,000. Of this only \$64,300,000 was in gold, however, although the balance of that metal has been gradually increasing. The total gold exports of last week amounted to but \$600,000, and in the present condition of foreign exchange no further large shipments are looked for at present. A New York firm, however, ordered \$800,000 gold for shipment on Thursday of this week. This is believed to be on a special order, as the conditions of exchange would not warrant it being done at a profit.

London buying on a somewhat liberal scale has introduced renewed strength and activity into the railroad bond market. The demand for these securities shows a marked increase and prices have advanced materially in some lines, brokers experiencing a difficulty in

supplying the demand for the better grades. The market for municipal bonds is also strong, and Government bonds have exhibited considerable strength and activity. The fives have advanced largely owing to the growing belief that another issue will be unnecessary. Closing quotations on Wednesday were as follows:

	Bid.	Asked.
2's, 1891, registered.....	96	.....
4's, registered.....	114	114½
4's, coupon.....	114	114½
5's, registered.....	118½	118¾
5's, coupon.....	119½	119¾

Bar silver is steady at 28-7½ pence ½ ounce in London and 62¢ in New York.

Exports from New York (exclusive of specie) show a decline, being of the value of \$6,300,000 for the week ending July 17, against \$8,235,000 for the corresponding week of last year.

## British Metal Market.

[Special Cable Dispatch to The Iron Age.]

LONDON, WEDNESDAY, July 18, 1894.

Pig Tin prices have moved within a narrow range, but the average is lower, with closing figures 5/ @ 7/6 below those that prevailed at the end of last week. This is attributed to lack of support by leading operators, quiet consumptive demand and large Straits shipments. The latter include for the first half of the month 1200 tons to England and 410 tons to the Continent. At the close the market was soft, with £67. 5/ quoted for prompts and £67. 15/ for three months' futures.

Copper declined somewhat under the weight of realizations, but improved later, on better advices from the United States and more active buying for American account. The speculation has been light during the past few days, however, and purchases for consumption have continued light. Chili charters first half of the month were 1400 tons. European spot stocks increased 553 tons and the visible supply increased 1553 tons. The market at the close was quiet, with £38. 12/5 quoted for spot and £39 @ £39. 2/6 for three months' futures.

Tin Plate is without quotable change in price, but the market is given somewhat weaker tone by the restarting of several mills. The quarterly meetings were dull and business done was chiefly for home account and in special sizes of Plate. There is little interest in futures and that mostly from the Continent. Prices f.o.b. at Swansea are as follows:

Bessemer Cokes, 14 x 20.....	@ 10/3
Siemens Cokes, 14 x 20.....	@ 10/6
Ternes, double box.....	@ 19/
Charcoals.....	13/ @ 15/

Pig Lead remains at about £9. 10/ @ £9. 12/6 for Soft Spanish, with a moderate business passing.

Spelter remains at about £15. 17/6 @ £16 for ordinary Silesian and is in fair demand.

Pig Iron warrants have undergone very little change. Late sales were at 41/10 @ 41. 11/ for Scotch, 35/4½ for Cleveland, and 44/10 for Hematite.

# HARDWARE.

## Condition of Trade.

**S**INCE the railroads stopped by the disturbances connected with the strike resumed operations, there has been a renewal of business in the centers directly affected, as referred to in the following dispatches from Chicago and St. Louis as well other advices. The movement of general trade is not, however, at all active, and for the time being business is almost at a standstill. Most of the orders which are being received are from smaller houses who are sorting up or purchasing goods required for their immediate needs. The large trade are also to some extent placing orders, and it is reported that one or two of the leading jobbing houses are buying much more liberally than for some time, apparently regarding the present as a good time to purchase and get the benefit of the very low prices which on many lines are obtainable. The cases in which this policy is pursued are, however, comparatively few and quite exceptional, most houses purchasing cautiously and entertaining no especially sanguine expectations as to the volume of trade in the near future. What the course of things will be it is impossible to forecast with certainty, but in present conditions it is incumbent on buyers to watch the market closely and discover if they can the earliest symptoms of recovery in the matter of prices or increase in the volume of business. It is certain that stocks in the hands of the trade and of manufacturers are exceptionally light, and if a normal demand should set in the market would probably in many lines promptly respond, developing possibly something of a scarcity and an enhancement of values.

### Chicago.

(By Telegraph.)

A much larger trade has been enjoyed during the last few days by the jobbers in Shelf Hardware. Orders which have been kept back by the demoralized condition of the railroads are now coming in rapidly, and the concentrated business of the past two weeks is being felt. The Northwestern trade also now fully understand that Chicago is able to make prompt shipments. Mail orders are good as well as orders sent in by traveling salesmen.

The Stove Board manufacturers are now quoting prices for the coming season, which are from 20 to 40 per cent. of an advance over those made last year. The Heavy Hardware trade is confined to small orders, which are fairly numerous. People are buying cautiously, and only from hand to mouth, but they seem to be obliged to buy, often, and consumption is thus shown to be good, despite the appearance of extreme dullness. The Carriage trade is now about over for this season.

### St. Louis.

(By Telegraph.)

The cessation of the railroad strike has resulted in a flow of small orders from country customers which has kept the Hardware jobbers quite busy. A steady trade is anticipated, as some sections have been virtually shut out of this market for three weeks on account of railroad troubles. The demand for shelf goods shows a gratifying increase, and there is also a good demand for Heavy Hardware. The trade are just now watching the reports of the wheat and corn crops. The former is already assured and the latter gives promise of being satisfactory. The only drawback to a heavy fall trade is the fact that railroads are not likely to be heavy buyers, as the recent strike has cost them a great deal of money and they are not likely to buy any more than is absolutely necessary. The fall trade is still a few weeks off and conditions can change considerably in that time. At this writing, however, the situation cannot be called encouraging.

### Louisville.

**W. B. BELKNAP & Co.**—The all-absorbing topic since our last report has been the great sympathetic strike, put in motion by an irresponsible individual to whom such deference has been paid by his followers, and even governors of the great States, as might gladly have been claimed by the head of the Church from the faithful in the darkest of the middle ages. Blind obedience of this kind really does seem out of date. But what are we going to do about it when Governor Markham, in his own great State of California, solicits protection from Debs, and Henry George of New York declares that he would rather see all of the railroads in the country destroyed than the Federal Government protect the citizens of the United States and their property, the acquirement of which property is the greatest incentive to labor, manual and intellectual, to thrift, patience, self denial—nearly all the virtues, in short, which go to make up the true manhood.

As the last election had a good many surprises for us, some of them un-

pleasant, we doubt not that the succeeding ones will be equally unexpected in their results to many people. In any event we must have order. The idea of this great country reverting to a state of disorder, barbarism, guerilla warfare, is not to be harbored for a single moment.

Trade, of course, in Hardware and other lines has been seriously affected, but it demonstrates how very solid prices were in that they have not declined a single notch, but, on the contrary, are stiffer on several staple lines than before.

Wire Nails are strong and manufacturers talk higher prices. Wire holds its own well despite the fact that it is out of season. As soon as Congress tells us definitely what we have to do and what we have to expect, we look for more or less improvement all along the line.

### Cleveland.

**THE W. BINGHAM COMPANY.**—The strike has had a paralyzing effect upon trade in this locality and business in Cleveland is practically at a standstill. It is fortunate that the trouble occurred at the dull season, when it will do the minimum amount of damage to the business of the country, and we hope that by August 1 things will have assumed their wonted aspect and that conditions will be as favorable as possible for the much needed revival of trade. Cleveland jobbers are taking advantage of the quiet time to give as many of their employees vacations as possible, so that when business is resumed they will have their full forces on hand. There are no changes in prices since our last. Collections are good.

### St. Paul.

**FARWELL, OZMUN, KIRK & Co.**—The settlement of the strike difficulties finds its immediate effect in an inflow of orders, which is quite gratifying. They are the orders which would naturally have been placed early in the month, and are accompanied by special requests for prompt attention. We expect, therefore, a very fair business for the balance of the month.

The extreme hot weather and lack of moisture are having their effect upon the crops, and may do serious damage if a change does not come soon.

We suppose that we share the inclination of other correspondents to express our opinion in no mild form on a state of affairs which has for its effect stagnation of business, but an enormous activity in the minds and passions of men. We hope that the faith we had two weeks ago in the reasonableness of American liberty-loving workmen will not again be so sorely tried.

### Portland, Oregon.

**CORBETT, FAILING & ROBERTSON.**—Stoppage of mails and interruption of railway freight traffic have of course materially affected trade in all lines. Nevertheless a fair business was done in June, and there is every indication

that July will show a decided increase. The river towns are well served by the numerous small crafts which are now reaping a harvest. Repairs to damaged railroads are rapidly progressing, and we are promised regular shipping facilities next week; meanwhile the wheat is growing.

#### Philadelphia.

**SUPPLEE HARDWARE COMPANY.**—Trade during the last few weeks has been influenced by conditions which have prevailed throughout the country. It is quite natural that distrust and hesitancy should force themselves forward into the minds of traders far beyond the reach of sections immediately affected by the great labor strike and destructive conditions of the West.

While at this writing the mobs have been dispersed, unrest greatly quieted, workmen returned to their duties from which they were called by agitated walking delegates or leaders, and the great strike practically collapsed, the events of the last two weeks go to show the confidence the American people have in the ability of the Government when once aroused to action.

The great strike, although it could not have come at a better time than during the midsummer months and in the midst of depressed conditions, nevertheless has done incalculable injury, and it does appear wonderfully strange that workmen could possibly be so unjust to themselves as they have shown themselves during the last few months, beginning weeks before the Chicago outburst.

While capital has been affected, disturbance of goods interfered with, trade demoralized and losses sustained throughout the entire line, yet the workmen have suffered more by their own action than any other class.

For the present the threatened labor clouds have almost dispersed and the outlook has vastly improved. The partial paralysis to trade, we feel, is likely to be stimulated into normal conditions at an early date; indeed, as soon as labor agitation and Congress will permit.

It is but natural that collections should be disastrously affected from the results of the last few weeks. We can therefore only report collections at a minimum.

Midsummer vacation period leaves a minimum corps to attend to the wants of customers.

#### Boston.

**BIGELOW & DOWSE COMPANY.**—July and August are usually dull months, and the past two weeks have kept up the record. Trade is of about the same volume as last year. Salesmen are taking their vacations and no especial efforts are being made to take fall orders. There seems to be no fear that the sympathetic strike will reach New England. Our workmen are too intelligent to waste their time and money in such foolish amusement. Labor is well employed, but like everything else it feels the hard times. Every one is waiting and hoping that Congress will complete its work and adjourn. All seem to be impressed with the feeling that when the tariff is settled better times are coming. Prices are still ruling very low, but there is little inclination to speculate. The prices of Wire and Cut Nails do not seem to have been affected by the advance in Steel billets. There is a feeling that with the Settlement of the coal and railroad strikes, billets will decline again, and that any advance in Wire

or Cut Nails will only be temporary. In the cities the Bicycle trade is light, but there is an unusual demand in the country for medium grade wheels.

#### Omaha.

**LEE-CLARKE-ANDRESEN HARDWARE COMPANY.**—As usual at this season of the year business is not so very active, but still there is a fair volume of goods moving.

Since the first of the year shrinkage in values has been so great in many lines of Hardware that it requires a good many more goods than it did a year ago to amount to the same in dollars.

The great labor troubles, which have tied up so many of the leading transportation companies, and have so seriously inconvenienced others, have overshadowed every other feature of the past two weeks. These conditions have naturally caused a feeling of uncertainty and insecurity in business circles.

Crop reports indicate a fine condition of affairs in the country, and the weather has been very favorable to the growing plants.

Upon the whole, business men regard the situation with considerable disquietude, claiming that no one can foretell when and how the next trouble will break out.

No commercial business can stand the strain of events that have occurred during the past two weeks, and no commercial community can prosper if the business fabric is liable at a moment's notice to be practically paralyzed and plunged into anarchy and disorder, like that which has marked the period named.

American statesmanship has a new problem to solve, and upon its solution depends in a great measure the future welfare of our commercial world, and it is to be hoped that our legislators will take up the subject at once and act upon it equally promptly.

### Notes on Prices.

**Wire Nails.**—The mills are nearly all shut down and report exceptionally light stocks, which are, however, amply sufficient for the very moderate demands which are made upon them. It is not unlikely that in many cases the mills will remain closed until some time in August, as the manufacturers are not disposed to accumulate heavy stocks until there are indications of a more satisfactory business. Quotations continue \$1.15 for carload lots at mill, a price which is quite well maintained, though sometimes shaded by jobbers. Small lots from store in New York are held at \$1.30 to \$1.35.

**Chicago, by Telegraph.**—Manufacturers are booking almost no orders. Factories are shut down and stocks are light, so that prices are firmly maintained. The small business is progress is being handled almost exclusively by jobbers, who are slightly shading manufacturers' prices on carload lots. Quotations are \$1.20 to \$1.25, Chicago, on factory lots, and \$1.25 for small lots from stock.

**Cut Nails.**—Cut Nails are held at about the same prices that have prevailed for the past week or two, the market in the East being represented

by the quotation of \$1 for carload lots on dock at New York, a figure which is, however, slightly shaded in some cases, while, on the other hand, some mills ask a slightly higher price. Most of the mills are shut down, as usual at this season, and report light stocks. The store price for Cut Nails in New York is \$1.10 to \$1.15.

**Chicago, by Telegraph.**—The Lakeside Works are expected to start up in a few days, or as soon as a regular supply of fuel can be depended upon. Wages have been adjusted for the coming year, and orders have accumulated in sufficient quantities to assure a steady run for some time. Quotations on factory lots are maintained at 95 cents, Chicago, on 55-cent average and \$1.15 on small lots from store.

**Barb Wire.**—The Barb Wire market is exceedingly sluggish and there is scarcely enough business to make a price. Quotations are therefore unchanged and the market is represented by the following prices for Four-Point Galvanized, delivered at the points named: Pittsburgh, \$2.05 to \$2.10; Cleveland, \$2.10 to \$2.15; Cincinnati or Allentown, \$2.25 to \$2.30; Chicago or New York, \$2.25 to \$2.30. It is not unlikely that some concessions could be obtained from these figures, but manufacturers are not pushing for business.

**Chicago, by Telegraph.**—Manufacturers of Barbed Wire seem to be letting the market take care of itself. The demand at present is very light from all classes of buyers, but quotations continue at \$2.35 to \$2.40 for small lots of Galvanized from store, with the usual reduction of 10 cents on carload lots. The Washburn & Moen Mfg. Company have started up their works and are now running full in nearly every department.

**Screws.**—The market for Screws continues to be somewhat weak and irregular and somewhat lower prices are being made more frequently than a few weeks ago.

**Cordage.**—Manufacturers are holding prices firmly on the basis of 7½ cents for Manila in large lots, f.o.b. factory or New York. The demand, however, is very moderate and some of the jobbers who still have considerable Rope on hand are cutting this price more or less freely.

**Currier's Curtain and Map Fastener.**—This article is put on the market by Currier & Co., Grand Rapids, Mich., and was illustrated in *The Iron Age* July 5. It is sold to the trade at the following net prices:

	Per gross. Cents.
No. 1.....	50
No. 2 for store shades.....	65

**Perfection Tuck Marker.**—The Perfection Tuck Marker, illustrated in our last issue and put on the market by W. A. Wilson, corner River and Water



streets, Rochester, N. Y., is sold to the trade at \$3.50, subject to a discount of 10 and 5 per cent.

**Wringers.**—The American Wringer Company, 99 Chambers street, New York, have issued revised prices on their line of Wringers. Advances are made in their standard first quality Wringers, such advances being referred to by the company as covering but a portion of the increased cost of the goods on account of the superior quality of the rolls used in them. This is a matter to which the company have recently been and still are giving special attention, and for the manufacture of rolls the company have erected an exceptionally complete plant, which is now in operation. Their revised list is as follows, terms 60 days, or 2 per cent. discount for cash in 10 days:

#### Iron Frame Wringers.

Name.	No.	Size of rolls.	Price per dozen.
Daisy.....	2	10 x 1 3/4	\$16.00
".....	3	11 x 1 3/4	20.00
".....	4	12 x 1 3/4	24.00
Handy.....	2	10 x 1 3/4	16.00
".....	3	11 x 1 3/4	20.00
".....	4	12 x 1 3/4	24.00
The A. W. Co.....	2	10 x 1 3/4	17.00
".....	3	11 x 1 3/4	21.00
".....	4	12 x 1 3/4	25.00
".....	5	14 x 1 3/4	34.00
".....	6	16 x 2	44.00
Sherman.....	4	12 x 2	76.00
".....	5	14 x 2	102.00
Relief.....	2	10 x 1 3/4	20.00
".....	3	11 x 1 3/4	24.00
".....	4	12 x 1 3/4	28.00
".....	5	14 x 1 3/4	37.00
".....	6	16 x 2	47.00
".....	22	10 x 1 3/4	22.00
".....	33	11 x 1 3/4	26.00
".....	44	12 x 1 3/4	30.00
".....	55	14 x 1 3/4	39.00
".....	66	16 x 2	49.00
Eureka.....	2	10 x 1 3/4	20.00
".....	3	11 x 1 3/4	24.00
".....	4	12 x 1 3/4	28.00
".....	5	14 x 1 3/4	37.00
".....	6	16 x 2	47.00
Superior.....	2	10 x 1 3/4	19.00
".....	3	11 x 1 3/4	23.00
".....	4	12 x 1 3/4	27.00
".....	5	14 x 1 3/4	36.00
".....	6	16 x 2	46.00
Superior, with Relief Screws..	2	10 x 1 3/4	21.00
".....	3	11 x 1 3/4	25.00
".....	4	12 x 1 3/4	29.00
".....	5	14 x 1 3/4	38.00
".....	6	16 x 2	48.00

#### Wood Frame Wringers.

Rival.....	10	10 x 1 3/4	\$18.00
".....	11	11 x 1 3/4	22.00
".....	12	12 x 1 3/4	26.00
Household.....	10	10 x 1 3/4	18.00
".....	11	11 x 1 3/4	22.00
".....	12	12 x 1 3/4	26.00
Imperial.....	XX2 1/2	10 x 1 3/4	19.00
".....	XX1 1/2	11 x 1 3/4	24.00
".....	XX1 1/4	12 x 1 3/4	29.00
Novelty.....	10	10 x 1 3/4	22.00
".....	11	11 x 1 3/4	27.00
".....	12	12 x 1 3/4	32.00
".....	20	10 x 2	32.00
".....	30	11 x 2	42.00
".....	40	12 x 2	52.00
".....	50	14 x 2	70.00
".....	2	10 x 1 3/4	22.00
".....	3	11 x 1 3/4	27.00
".....	4	12 x 1 3/4	32.00
".....	22	10 x 2	32.00
".....	33	11 x 2	42.00
".....	44	12 x 2	52.00
".....	2 1/2	10 x 1 3/4	22.00
".....	3 1/2	11 x 1 3/4	27.00
".....	4 1/2	12 x 1 3/4	32.00
".....	22 1/2	10 x 2	32.00

Name.	No.	Size of rolls.	Price per dozen.
Novelty.....	33 1/2	11 x 2	42.00
".....	44 1/2	12 x 2	52.00
Volunteer.....	10	10 x 1 3/4	22.00
".....	11	11 x 1 3/4	27.00
".....	12	12 x 1 3/4	32.00
Relief.....	110	10 x 1 3/4	25.00
".....	111	11 x 1 3/4	30.00
".....	112	12 x 1 3/4	36.00
".....	120	10 x 2	36.00
".....	130	11 x 2	45.00
".....	140	12 x 2	55.00
Conqueror.....	2 1/2	10 x 1 3/4	26.00
".....	1 1/2	11 x 1 3/4	36.00
Sterling.....	14	10 x 1 3/4	36.00
".....	18	11 x 1 3/4	48.00
".....	22	12 x 1 3/4	63.00
Excelsior.....	E	10 x 1 3/4	31.00
".....	F	11 x 1 3/4	36.00
".....	G	12 x 1 3/4	42.00
".....	EE	10 x 2	42.00
".....	FF	11 x 2	51.00
".....	GG	12 x 2	61.00
".....	H	12 x 2 1/2	99.00
".....	HH	14 x 2 1/2	126.00
".....	JJ	16 x 3	253.00
".....	KK	18 x 3 1/2	348.00
Universal.....	2 1/2	10 x 1 3/4	22.00
".....	2	10 x 1 3/4	26.00
".....	1 1/4	11 x 1 3/4	27.00
".....	1 1/2	11 x 1 3/4	32.00
".....	1 3/4	12 x 1 3/4	32.00
".....	1	12 x 2	52.00
".....	14	14 x 2	70.00
".....	A2 1/2	10 x 1 3/4	31.00
".....	B1 1/2	11 x 1 3/4	42.00
".....	C1	12 x 2	60.00
".....	D8	14 x 2 1/4	120.00
".....	B x 1 1/2	11 x 1 3/4	45.00
".....	C x 1	12 x 2	64.00
".....	D x 8	14 x 2 1/4	124.00
".....	8	14 x 2 1/4	120.00
".....	12	14 x 3 1/4	226.00
".....	18	17 x 2 1/4	276.00
".....	22	17 x 3 1/4	363.00
Empire.....	3	10 x 1 3/4	34.00
".....	4	11 x 1 3/4	40.00
".....	4 1/2	11 x 1 3/4	45.00
".....	5X	12 x 1 3/4	48.00
".....	5	12 x 1 3/4	51.00
".....	14X	14 x 1 3/4	84.00
".....	11 1/2	11 x 1 3/4	60.00
".....	12 1/2	12 x 1 3/4	66.00
".....	16X	16 x 2	114.00
".....	14	14 x 2 1/4	127.00
".....	16	16 x 2 1/4	188.00
".....	14P	14 x 2 1/4	166.00
".....	16P	16 x 2 1/4	226.00
".....	40	11 x 1 3/4	51.00
".....	50	12 x 1 3/4	57.00
".....	5A	12 x 2 1/4	100.00
".....	14A	14 x 2 1/4	127.00
Welcome.....	20	10 x 1 3/4	26.00
".....	30	11 x 1 3/4	31.00
".....	40	12 x 1 3/4	36.00
".....	22	10 x 2	36.00
".....	33	11 x 2	46.00
".....	44	12 x 2	56.00
".....	20 1/2	10 x 1 3/4	26.00
".....	30 1/2	11 x 1 3/4	31.00
".....	40 1/2	12 x 1 3/4	36.00
".....	22 1/2	10 x 2	36.00
".....	33 1/2	11 x 2	46.00
".....	44 1/2	12 x 2	56.00
".....	E	10 x 1 3/4	35.00
".....	F	11 x 1 3/4	40.00
".....	G	12 x 1 3/4	46.00
".....	EE	10 x 2	46.00
".....	FF	11 x 2	56.00
".....	GG	12 x 2	66.00
Keystone.....	10	10 x 1 3/4	22.00
".....	16	11 x 1 3/4	27.00
".....	18	11 x 1 3/4	32.00
".....	20	11 x 2	42.00
".....	22	12 x 1 3/4	42.00
".....	24	12 x 2	52.00
Royal Keystone.	A	10 x 1 3/4	28.00
".....	B	11 x 1 3/4	38.00
".....	C	12 x 2	58.00

#### Bench Wringers.

Household.....	A	10 x 1 3/4	\$34.00
".....	B	11 x 1 3/4	39.00
".....	C	12 x 1 3/4	44.00
Excelsior.....	XA	10 x 1 3/4	40.00
".....	XB	11 x 1 3/4	45.00
".....	XC	12 x 1 3/4	51.00
".....	XAA	10 x 2	51.00
".....	XBB	11 x 2	60.00
".....	XCC	12 x 2	70.00
Universal.....	AA2 1/2	10 x 1 3/4	40.00
".....	BB1 1/2	11 x 1 3/4	51.00
".....	CC1	12 x 2	70.00
Keystone.....	40	10 x 1 3/4	32.00
Gem.....	4	10 x 1 3/4	38.00

Name.	No.	Size of rolls.	Price per dozen.
Gem.....	8	11 x 1 3/4	43.00
".....	16	12 x 1 3/4	48.00
Welcome.....	XA	10 x 1 3/4	44.00
".....	XB	11 x 1 3/4	49.00
".....	XC	12 x 1 3/4	55.00
".....	XAA	10 x 2	55.00
".....	XBB	11 x 2	64.00
".....	XCC	12 x 2	74.00
Empire.....	3	10 x 1 3/4	51.00
".....	4	11 x 1 3/4	57.00
".....	4 1/2	11 x 1 3/4	62.00
".....	5	12 x 1 3/4	70.00

#### Rolls for Wringers of All Makes.

Rolls and shafts complete, without cogs, for iron frame wringers.

Size of rolls.	Per dozen.
10 x 1 3/4 inches.....	\$7.20
11 x 1 3/4 ".....	8.70
12 x 1 3/4 ".....	10.20
12 x 1 3/4 ".....	12.00
14 x 1 3/4 ".....	15.00
16 x 2 ".....	22.50

Rolls and Shafts Complete, with Cogs, for Wood and Iron Frame Wringers.

Size of rolls.	Per dozen.
10 x 1 3/4 inches.....	\$8.40
10 x 1 3/4 ".....	10.20
10 x 2 ".....	12.00
11 x 1 3/4 ".....	10.20
11 x 1 3/4 ".....	12.60
11 x 2 ".....	15.00
12 x 1 3/4 ".....	12.00
12 x 1 3/4 ".....	15.00
12 x 2 ".....	18.00
12 x 2 1/4 ".....	25.50
12 x 2 1/4 ".....	34.50
14 x 1 3/4 ".....	19.50
14 x 2 ".....	24.00
14 x 2 1/4 ".....	33.00
14 x 2 1/4 ".....	42.00
14 x 3 1/4 ".....	60.00
14 x 4 1/2 ".....	120.00
16 x 2 ".....	30.00
16 x 2 1/2 ".....	54.00
16 x 3 ".....	72.00
17 x 2 1/4 ".....	45.00
17 x 3 1/4 ".....	90.00
18 x 3 1/2 ".....	108.00
18 x 5 1/2 ".....	240.00

**Utility Washer.**—This Washing Machine was described in our issue of 5th inst. It is manufactured by Olds Wagon Works of Fort Wayne, Ind., by whom it is sold to the trade at \$2.75, net.

**Steel and Malleable Clamps.**—The following are the quotations announced by the Barnes Mfg. Company of Phoenix, N. Y., on the line of Clamps which they have recently put on the market. Terms, f.o.b., 30 days, net:

#### Malleable Screw Clamps.

Discount, 50 per cent.

	Per dozen.
3-inch.....	\$3.00
4 ".....	4.20
5 ".....	5.00
6 ".....	6.50
7 ".....	7.80
8 ".....	9.00
9 ".....	10.00
10 ".....	11.00

#### Adjustable Screw Clamps.

Discount, 40 per cent.

	Per dozen.
3-inch.....	\$4.00
5 ".....	6.50
7 ".....	9.00
9 ".....	10.50
12 ".....	15.00
16 ".....	20.00

#### Malleable Iron Quilt Clamps.

Discount, 25 per cent.

1 1/2-inch.....	\$1.00
2 ".....	1.25
3 ".....	1.50

#### Cabinet Clamps.

Discount, 50 per cent.

	Per dozen.
2-inch.....	\$2.00
3 ".....	3.00



**Machine Shop Clamps.**

Discount, 33½ per cent.

No.		Each.
1,	opens 1½ inches.....	\$ 1.50
2,	" 1¾ ".....	.75
3,	" 2¼ ".....	1.00
4,	" 3¼ ".....	1.50
5,	" 4½ ".....	2.00

Full set of five clamps, \$5.75

**Heavy Pattern Steel Clamps.**

Discount, 45 per cent.

No.		Each.
1,	opens 2 inches.....	\$1.75
2,	" 3 ".....	2.00
3,	" 4 ".....	2.25
4,	" 5 ".....	2.50
5,	" 6 ".....	2.75
6,	" 8 ".....	3.25

Full set of six clamps, \$14.50.

**Steel Mechanics' Clamps.**

Discount, 45 per cent.

No.		Each.
1,	opens 2 inches.....	\$1.25
2,	" 3 ".....	1.40
3,	" 4 ".....	1.75
4,	" 5 ".....	2.00
5,	" 6 ".....	2.25
6,	" 7 ".....	2.50

Full set of six clamps, \$11.25.

Handle clamps, per dozen, \$2. Discount 40 per cent.

**Steel Fitters' Clamps.**

Discount, 45 per cent.

No.		Each.
1,	opens 1½ inches.....	\$1.00
2,	" 1¾ ".....	1.50
3,	" 2¼ ".....	2.00

Full set of three clamps, \$4.50.

**Machinists' Clamps.**

Discount, 33½ per cent.

No.		Each.
1,	opens 1½ inches.....	\$1.25
2,	" 2¼ ".....	1.50
3,	" 3¼ ".....	2.00
4,	" 4½ ".....	2.50

Full set of four clamps, \$7.25.

**Reynolds & Co.—Reynolds & Co.,**  
New Haven, Conn., issue the following  
discount sheet, representing their present  
prices, which apply only to standard  
goods in full packages, terms cash  
in 30 days:

	Discount per cent.
C. H. Iron Set Screws.....	70 and 10
" Steel.....	70 and 10
Soft Set Screws (Iron or Steel) 70 and 10 and 5	
Hexagon Head Cap Screws.....	60 and 10
Square.....	65 and 10
Round.....	50 and 10
Flat.....	50 and 10
Machine Screws,	
milled from solid bar.....	50 and 10
Button Head Machine Screws,	
milled from solid bar.....	50 and 10
Stud Bolts, milled over all.....	55 and 10
Round Head Iron Machine Screws.....	70
Flat.....	75
Filister.....	70
Round.....	70
Flat.....	75
Stove Bolts, in boxes.....	60
Milled Coupling Bolts, heads and	
nuts ground.....	50 and 10
Milled Coupling Bolts, heads and	
nuts not ground.....	60 and 10
Forged Tap Bolts.....	75
Taps.....	25
Finished Hexagon Nuts, 1½ inch and	
smaller.....	65
Finished Hexagon Nuts, larger than 1½	
inch.....	55
Semi-Finished Hexagon nuts, 1½ inch and	
smaller.....	70
Semi-Finished Hexagon Nuts, larger	
than 1½ inch.....	60
Machine Bolts, with Black Nuts.....	85 and 5
C. and T. Nuts.....	85
Coach Screws, plain points.....	85 and 5
" " gimlet.....	85

**Horse Nails.**—At a recent meeting  
of the manufacturers of Horse Nails it  
was decided to maintain present prices  
on all grades, and as a result the market  
is referred to as somewhat more regular  
and on the whole in a better condition  
than for some time.

**Glass.**—The market in American  
Window Glass continues without im-

portant change, although the demand  
has perhaps slightly improved owing  
to the fact that the railroads in the  
West are again in pretty fair shape for  
the reception of business. Whatever  
buying is done is for immediate con-  
sumption and consists for the most part  
of small lots, an entire absence of spec-  
ulative demand being noticeable. Owing  
to the competition of the jobbers  
who have on hand stocks of Glass  
purchased at low prices manufactur-  
ers have been compelled to slightly  
shade their previous quotations, the  
quotation on Pittsburgh Glass be-  
ing now 80 and 20 per cent. Plate  
Glass is in a very satisfactory con-  
dition and the outlook for the future is  
regarded as very promising. Quota-  
tions for New York and New England,

on the Eastern list, are 70 per cent. dis-  
count for sizes 5 feet and over, and 70  
and 10 per cent. discount for sizes 5  
feet and under. For the West quota-  
tions are reported as 70 and 5 per cent.  
discount for sizes over 10 feet, and 60  
and 20 per cent. discount on sizes 10  
feet and less, Western manufacturers' list.

GEO. B. ADAIR, who for the past  
11 years acted as treasurer and man-  
ager for the Gordon Hardware Com-  
pany of Seattle, Wash., has severed his  
connection with that firm, and will  
engage in business for himself. Among  
some of his firms is the Giant Powder  
Company, Consolidated, of California,  
who heretofore have been represented  
by the Gordon Hardware Company.  
It is his intention to handle only a few  
special lines of this character that he  
may give them personal attention.

## Letters from the Trade.

*Our readers are invited to discuss in these columns questions of trade inter-  
est connected with the manufacture or sale of Hardware. We shall be pleased  
to have a free expression of opinion on subjects deserving the attention of Hard-  
ware merchants and manufacturers.*

### Is the Jobber Necessary?

The communication which appeared  
in a recent issue under the above head-  
ing has called out the following reply  
from a gentleman long and promi-  
nently identified with jobbing Hard-  
ware interests. We take pleasure in  
laying it before our readers:

Referring to your issue of July 5, on  
page 31 is an article headed, "Is the  
Jobber Necessary?" and which is closed  
by the question, "Who can contradict  
this?" This requires especial atten-  
tion, as it attacks a large interest that  
is embraced by the wholesale Hard-  
ware trade of many millions.

The article in your issue of the 5th is  
very cleverly written, and states possi-  
bly the truth as far as it goes, but  
does not state the whole truth. If it  
did, the conclusions drawn by the care-  
ful reader would be quite different.  
We can answer that the jobber is a  
necessity.

As a great poet has said, "we should  
be loth to prove by language," and we  
hold that the facts contradict the state-  
ment to any unprejudiced mind.

The experience of the writer, extend-  
ing over nearly 40 years, justifies the  
conclusion that the jobber is a neces-  
sity to the manufacturer. It has been  
the main object at all times of the job-  
bers to cultivate the most pleasant  
business relations with the manufactur-  
ers, working with them in harmony  
and to their mutual interests. It is a  
well-known fact that some manufactur-  
ers sell to retailers in the Eastern  
States, but we, who live west of the  
Alleghanies, know the necessity of the  
jobbers and their convenience to the  
retailers.

The facts are what we wish to arrive  
at, and the writer, who has associated  
with many manufacturers for many  
years, has yet to find one who does not  
court the trade of the jobber and rely  
upon him to dispose of his product  
in distributing it over the country in  
small amounts, thereby taking all the  
chances that are incident to the credit  
system.

The Heavy Hardware trade possibly  
does business upon as close margins as  
any business in the country. This  
branch of trade embraces several hun-  
dred different lines of goods, all of

which are illustrated in catalogues,  
complete in every particular, and there  
is not a retailer in the West who has  
not a catalogue of the Western Jobber,  
who is always complete and "up to  
date," and who at all times to close  
buyers makes the same prices as the  
manufacturer would make to the retail  
trade with the freight added. It is  
impossible for any manufacturer to  
start out and sell his goods to the re-  
tailer as cheap as it can be done by the  
representatives of the jobber, who can  
vass every place of any importance,  
and who are posted on the absolute  
cost of the goods, purchasing in car-  
load lots and handling so large a line  
of goods.

The jobber has the advantage in  
freights over the retailer at all times,  
largely, to the consuming points in the  
West, shipping in carload lots of most  
everything in his line of trade, and  
buying in vast quantities.

It is a well established fact that a  
large amount of goods can be produced  
at a much less cost proportionately  
than a small amount, and this holds  
good in the matter of sales. If the  
jobber is located in a large city, the ex-  
pense of doing business is less in ratio  
to the amount of goods sold than could  
possibly be the case by any other man-  
ner, everything being systematized.

The jobber being thoroughly posted  
at all times on the market, it gives him  
the opportunity of availing himself of  
the most opportune time for purchas-  
ing his stock, and it is a conceded fact  
expressed by many manufacturers that  
they would much prefer the trade of  
one jobber than the trade of 500 re-  
tailers; and those who have sought  
the retail trade have in a measure re-  
gretted their course, as their losses  
were much greater by reason of their  
inability to obtain the proper informa-  
tion that is afforded the jobber, whose  
representatives cover the territory  
every 30 or 60 days.

You can depend upon it the jobber  
has come to stay in the business, and  
while we have to contend with brokers,  
resident agents and various classes of  
trade, who are vampires on the trade,  
nevertheless we not only hold our own,  
but the growth of our business contin-  
ues without interruption from year to  
year.

It is the practice of large jobbers in  
all cases, when inquiries are received  
from consumers, to refer same to the

retailer to whom they sell, nearest the applicant for prices.

The Heavy Hardware Jobbers' Association moves along slowly, but their aim has been from the beginning to assist the manufacturer and make it an object to dispose of his goods through them; and while we don't expect to "change the stars in their courses," the jobber will continue to carry a complete line of goods necessary for the trade he seeks, and make the prices so low as to make it an object to the retailers to place their orders through them, who enjoy their confidence and work in harmony at all times.

### Mail Orders.

King Hardware Company, Atlanta, Ga., are making a special effort to attract mail orders, and give the following reason for giving prominence to this department of their business:

We feel that if we have a dealer's mail orders it shows that we are in touch with him, and it makes it much easier for our travelers to interest him on their monthly rounds.

To encourage voluntary orders from the trade, and to keep the subject prominently before them, the company have printed on their outgoing envelopes in conspicuous type the following words: "Mail orders receive our promptest attention and lowest prices."

The letters are in white on a green background of diamond shape, and the matter is thus brought prominently to the attention of their correspondents.

### How Is Your Business Going?

The fact that many merchants have no system by which they can readily determine whether or not the business they are doing is profitable is touched upon in the following communication. The force and wisdom of the suggestions made by our correspondent will be recognized:

By consulting the weekly reports of the commercial agencies, as published in the daily press, it will be found that there were, for instance, 220 failures in the United States and 24 in Canada, for a certain week. The statement is often quoted, and generally accepted, that 90 per cent. of all who start in business fail, leaving but ten successful ones out of every hundred. There are, therefore, 90 per cent. of chances that persons will fail in business, and only 10 per cent. chance of success.

While there is no way of deciding what proportion of those engaging in the Hardware business fail to make a success of it, it is safe to assume that failures in this line are as small, or smaller, as in any other line of business.

I will not attempt to recount all the pitfalls that lie along the way of the young man starting in business, but indolence and fear are two factors responsible for many failures after a business has been successfully started.

Probably no part of the business machinery is as defective as that of the office, in concerns whose annual sales amount to from \$8000 to \$12,000. While the proprietor pretends to do the bookkeeping, and may charge customers with what they buy, it is a question if he knows whether \$5000 or \$8000 is charged on his books. He is too indolent to take off a monthly trial balance, or fearful if he should do so that he would find himself in an insolvent condition. He is unable to tell whether any one month's business runs

ahead or behind the corresponding month of former years, consequently he has no barometer by which to decide whether fair weather or storm is approaching.

If things come to such a pass that he can no longer deceive himself as to his real condition, he is afraid to let his customers know of his need of money or to retrench for fear his competitors will talk about it.

When a proprietor's time is so fully taken up with business outside of the office that he is not able to give the office work the attention it demands, we know of no more sure preventive for failure than competent office help, who will keep track of the discounts available on bills payable, customers' accounts which should be collected and who will keep the proprietor apprised of the condition of his business affairs.

### Credits.

THE CAREFUL and able papers on the subject of credits presented at the recent meeting of the Southern Hardware Jobbers' Association have received their full share of attention from the trade, as evidenced by the number of comments which in one way or another have come to our knowledge from manufacturers as well as merchants. The subject is one of constant practical importance, and any information bearing on the question of the wise management of credits in mercantile and manufacturing establishments cannot but be of value. In this connection we take pleasure in laying before our readers the following article written by W. S. Park, assistant treasurer of W. B. Belknap & Co., Louisville, Ky.:

One of the most important points to bear in mind in judging credits is that no two risks are alike. It is therefore necessary to treat each individually. While it is possible to classify them to a certain extent, it is not practicable. A good credit risk to-day may be a poor one to-morrow. If known quantities produced same results in all cases, success or failure could be foretold with mathematical exactness. Honesty and ability do not always pay 100 cents on the dollar.

Rapid and cheap transportation has made it possible for the credit man to know personally his risks. A poor way of judging the credit of a man is by looking at him, and worse still by looking at his stock and store. The proprietors of some of the most orderly and cleanly kept stores here in our own city are slow and unsatisfactory credits. They do not display their chattel mortgages and bills payable in their show windows as we would like.

When an order from a new customer is received his references are generally good; of course he will not refer to those who have had unsatisfactory dealings with him. For obvious reasons we prefer to consult the people with whom he has traded but to whom he does not refer. A general reply to an inquiry should not be accepted as favorable unless the wording is capable of only one construction. The simple statement "he is good" does not mean that he will pay according to agreement, that his account will be satisfactorily settled, or that he will make a desirable customer.

We must secure all the information possible, decide what to do, do it and then stick to it. If you refuse credit do not be too easily persuaded to reverse or modify your judgment. Salesmen, as a rule, have a peculiar faculty

of finding out that "he pays everybody else," when really they know nothing at all about it.

The qualifications which make a good salesman are so opposite to the successful judge of credits that the combination of a sales-credit man is hard yea, very hard to find.

Banks and bankers seldom tell what they know about a man's financial condition. They are not at liberty to do so. This source of reference, then, is of comparatively small value.

The most reliable information can only be obtained from the ledger account. The payments show the financial condition plainly. To the physician, the pulse, and to the credit man, the ledger, show the condition of the man, physically and financially.

Almost every failure is foreshadowed by some little irregularity in the manner of settling an account, and often this irregularity is indicated far enough in advance of the collapse to obtain a settlement by prompt action. A merchant may be able to pay your claim, but not yours and another. If you suspect financial weakening, push an early settlement by all means. You may lose a customer, but if you save your account you are ahead. Delay frequently causes loss of customer and money too.

The limit of credit cannot be expressed in dollars and cents. You may fix a "sign" to an account, signifying your desire to be advised by the book-keeper when the account reaches a specified amount; but the circumstances pertaining to the individual and his business have much to do with the amount of credit which should be extended. Ordinarily, if a merchant is entitled to credit at all, he is entitled to all his reasonable wants.

"Reasonable wants" is also an important part in judging credit. As a rule, a merchant of limited capital should not purchase a larger supply of goods than will meet the demand by the time the bill matures. Should the demand, however, exceed his expectation he can re-order. If, on the contrary, the supply is too large, the purchase would hardly be sufficiently large to embarrass him in paying his account promptly when due. A case in the mind of the writer illustrates this point: A party with fair rating sent in an order for goods. On investigation, a comparison of the locality with the amount of goods ordered revealed the fact that the supply would meet the demand of the whole county for the next 20 years. The order was declined as unreasonable. (About 40 days afterward he "sold out").

As suggested, the manner of paying is one of the most important points regarding the limits of an account.

A merchant who has always met his bills promptly has the right to an unlimited account, even though his surplus is small. On the other hand, an old semi-annual settler who calls a bill paid promptly when he gives a four months' note, six months after maturity, is the one whose credit throughout the entire business world should be so limited that he could not purchase anything except for cash in hand, notwithstanding he may own a whole county.

It is refreshing to note a growing tendency to exchange exact information and compare experiences by the credit men of houses competing for the same trade. The salesmen of these different houses call to see the same customer. Is there any reason why there should not be an exchange of information as to the financial standing of customers between competitors in the same line of business? Surely not. The idea is an old sentimental one and should be relegated to sweet oblivion.

Finally, in handling credits, if the account is a new one, treat it as you

would a new friend—with little confidence until proven trustworthy, then put all the eggs you can in the basket and "watch that basket."

## Outing of the New England Iron and Hardware Association.

THE NEW ENGLAND IRON AND HARDWARE ASSOCIATION, at the invitation of the Rhode Island Perkins Horse Shoe Company and the Congdon, Carpenter Company of Providence, R. I., held their regular monthly meeting and dinner at the famous Squantum Club, on the shores of Narragansett Bay, Tuesday, July 17.

Forty-two members and guests left Boston on a special car attached to the 11 o'clock train, and were met at Providence by H. C. Bangs of Congdon, Carpenter Company, who escorted them across the city to the steamer "Wave," where they joined the Providence contingent and sailed down the harbor to the club house.

For an hour the guests strolled about the extensive grounds, inspected the appointments of the club, and indulged in bowling and other sports until dinner was announced at 2.15 p.m. This was served in the dining hall overlooking the bay, which has held in times past so many distinguished assemblies.

The excellent menu was discussed with deliberation and great enjoyment until shortly after 4 o'clock, when the company was called to order by John S. Congdon, who welcomed them to Providence in the name of his own concern and the Rhode Island Perkins Horse Shoe Company, afterward resigning the head of the table to President Edwin L. Haley, who in turn introduced Charles Clark Adams, who acted as toast master. Mr. Adams filled this position in his usual happy and graceful manner, introducing each speaker with some bright sally of wit or pertinent bit of wisdom.

The post-prandial exercises were entirely informal. The first speaker was C. H. George, a prominent Hardware man and also postmaster of the city of Providence. He began by saying that he wished he could address the company through the mails and ended by giving them an excellent address. He was followed by L. L. Ensworth of Hartford, Conn., president of the Western New England Iron and Hardware Association. He spoke of that organization and its work, saying that it was indirectly complimenting the association, whose guest he was, by adopting its best features.

Mr. Adams then introduced a guest from the South, W. H. Heyburn of W. B. Belknap & Co., Louisville, Ky., who expressed his pleasure at being present at the dinner, congratulated the association on the good work it appeared to be doing in the neighborhood, hoping that it would extend to other parts of the country, taking in Louisville.

An interesting letter from Charles A. Burditt of Burditt & Williams, Boston, who is abroad, was then read,

after which Mr. Adams referred to the good work that *The Iron Age* was doing to bring the knowledge of the various Hardware organizations to every one in the trade, and expressed his regret that its Hardware editor, Richard R. Williams, was unable to be present. He introduced Walter C. English, the Boston representative, who made an interesting address on the value of trade associations.

J. C. Ivy was introduced as the counsel of the association, and briefly touched upon the work such associations were doing to improve the morals of the business world by teaching men to pay their honest debts. In conclusion, H. C. Bangs, who had personally conducted the party, expressed his pleasure at the presence of so many guests and his hope that they had enjoyed the afternoon. With three hearty cheers and a tiger for the hosts, the party re-embarked on the "Wave" and proceeded back to the city, where they took the 6.20 p.m. train for Boston.

It is one of the rules of the Squantum Club that no business shall be transacted on its grounds, and, further, as no one was disposed to mar the festivities of the occasion by anything so serious as business, that important matter was taken care of in the car on the way to Boston. At this meeting the following new members were admitted to the association:

Fowler Nail Company, Seymour, Conn.  
Standard Horse Shoe Company, Boston, Mass.  
Putnam Nail Company, Neponset, Mass.  
Concord Axle Company, Penacook, N. H.  
The W. H. Haskell Company, Pawtucket, R. I.

A resolution of thanks to the Congdon, Carpenter Company and the Rhode Island Perkins Horse Shoe Company was passed, and it was decided to accept the invitation of the Portland Hardware dealers to meet with them at Portland, Maine, on Tuesday, August 21.

It was also resolved that the annual dues of the association shall be \$50, including dinners and credit bureau, and to associate members \$25.

A committee was appointed to draft appropriate resolutions on the death of H. O. Stratton, one of the members of the association.

## The German Razor Industry.

BY VIATOR.

IN THESE DAYS of aggressive competition a thorough knowledge of the details of business and the closest attention thereto is conceded to be necessary to success. In this connection the methods of German manufacturers of Razors are deserving of attention.

In England the managing director transacts his business through a superintendent, who is engaged at the lowest possible compensation. He is treated as a servant, and hence his sympathies are naturally on the side of labor. There exists in England a union of labor which regulates the price of steel which enters into the Razor, and every operation required to produce a Razor

is governed by that union. There is a schedule for forging, grinding, polishing, etching, hafting, &c., and woe to the laborer who departs from the iron-clad rules and regulations of this union.

Certain methods have been followed in England in the production of Razors for a century or more. New methods which naturally develop in the course of time, some of which are necessarily an improvement, are immediately voted down without an intelligent investigation of their merits. To illustrate: It is acknowledged that a shoulder, say  $\frac{3}{8}$  inch from the edge in a hollow ground Razor, strengthens the blade and at the same time gives it more elasticity and it is thus better adapted to shave cleaner and better. To produce this shoulder the blade must first be grooved from shank to point; but as the English grinder insists that a blade must be ground from the back to the edge, all English forged Razors required to be ground as common sense would dictate must be sent from England to Germany to be ground. The entire effect of these unions checks progress. The forger protects the grinder, the grinder the hafter, and so through the line of operations, and collectively they tie the hands of the employer.

As a natural result, Razors made in Germany and bearing the stamp, "made in Germany," as the law requires, may be found in any Cutlery shop of any standing in London, Liverpool and any other city in the United Kingdom.

The German manufacturer lives in the Solingen district, which includes the town of Weier, among the hills over which he loves to roam; having no horses, a luxury almost unknown to him, he is at his post early and late and at work. Not being troubled with know-it-all-ism, he is eager to learn of all new methods in the manufacture of goods and strives to please his customer as to styles, etching, finish, &c. He is master of the situation, being a practical man, to whom a superintendent is an unknown quantity.

If he hears of a union to be in contemplation among his men he is ready with a strategic movement. A system is now being introduced in one of the German factories which will put unions out of question. This factory is owned by three active Germans—one, the best grinder in the district, with his headquarters at the grindstone; the other a forger, who can always be found at the forge; and the third disposes of the product and gives finances his attention. They being thus equipped are masters of the situation. They divide the operations in the forging department in such a manner that better results are obtained collectively without the workman being obliged to spend years of his time to learn to forge a razor complete. With their method one man forges one part of the razor, the next another, and so on, and each man being confined to that one operation does his one simple part to perfection. Being confined to that one operation he does it quicker and better. The same system is carried through the grinding, etching, hafting, and in fact all departments.

To sum up the matter, Germany, with its desire to acquire all possible knowledge and taking advantage of the knowledge acquired, with their economy, thrift and general enterprise, now holds the key to the razor business of the world, and all has been accomplished within ten years. Prior to that time an order for six dozen razors would have been considered large, while 1000 dozen would not create any extraordinary excitement at this writing.

## Export Notes.

**I**N VIEW of the increasing interest and importance of export trade to the American manufacturer of Hardware the following information in regard to it will be of value to those seeking this class of business:

### Inter-Colonial Conference.

The Colonial Conference, which convened in the Senate Chamber at Ottawa, Ontario, June 28, adjourned last week. The main objects of the meeting are best explained in the resolution given below. One of the results sought was the completion of a telegraph and cable system encompassing the globe that, so far as concerned the land lines, would pass entirely through British territory.

The following were the delegates chosen by the British Government and the various colonies:

IMPERIAL GOVERNMENT, The Earl of Jersey.  
NEW SOUTH WALES, Hon. B. F. Suttor.  
TASMANIA, Hon. Nicholas Fitzgerald.  
CAPE OF GOOD HOPE, Sir Henry De Villiers; Sir Charles Mills; Hon. Jan. Hendrick Hofmeyr.  
SOUTH AUSTRALIA, Hon. Thomas Playford.  
NEW ZEALAND, Alfred Lee Smith.  
VICTORIA, Sir Henry J. Wrixon, Hon. Nicholas Fitzgerald, Hon. Simon Fraser.  
QUEENSLAND, Hon. A. J. Thynne; Hon. William Forrest.  
CANADA, Hon. Mackenzie Bowell; Hon. Sir Adolph Caron; Hon. George E. Foster; Sandford Fleming.

The following is the text of the principal resolutions adopted by the conference, on motion of Mr. Foster, seconded by Sir Henry Wrixon:

*Whereas*, The stability and progress of the British Empire can best be assured, by drawing continually closer the bonds that unite the colonies with the mother country, and by the continuous growth of a practical sympathy and co-operation in all that pertains to common welfare; and

*Whereas*, This co operation and unity can in no way be more effectually promoted than by the cultivation and extension of the mutual and profitable interchange of their products; therefore,

*Resolved*, That this conference records its belief in the advisability of a customs arrangement between Great Britain and her colonies, by which traffic within the Empire may be placed on a more favorable footing than that which is carried on with foreign countries.

*Further resolved*, That until the mother country can see her way to enter into a customs arrangement with her colonies, it is desirable that, when empowered so to do, the colonies of Great Britain, or such of them as may be disposed to accede to this view, take steps to place each other's products, in whole or in part, on a more favored customs basis than is accorded to like products of foreign countries.

*Further resolved*, That for the purposes of this resolution the South African Customs Union be considered as part of the territory capable of being brought within the scope of the contemplated trade arrangements.

### Australian Trade.

R. W. Cameron & Co., 23 South William street, New York, owners of the Pioneer Line of Australian packets,

according to the records, cleared the following vessels recently for the colonies: "Duleep Singh," 2278½ tons of cargo; "Ebenezer," 3247½ tons; "H. Bischoff," 5376½ tons; all three vessels being cleared through the Custom House within a period of three days. The "H. Bischoff," now a four-masted sailing vessel, is best known as the former steamer "Ville de Paris" of the French Line. The cargoes consist principally of case oil, Agricultural Implements, largely from Walter A. Wood Mowing & Reaping Machine Company and Aultman, Miller & Co., and Rosin, with a filling of manufactured goods of various kinds.

### South African Trade.

Norton & Co., 90 Wall street, New York, cleared the new steamer "Strathmairn" for Cape Town recently. She carried 5200 tons of cargo, together with 1900 tons of coal, sufficient in volume to carry her to Australia from Cape ports. She will go to Tamatave, Madagascar, where she will finish discharging her outward cargo, after leaving the South African ports. She will then proceed to Australia, where she is already chartered for her home port in England. The next steamers of this line from New York will be the "Olive Branch," about August 1, and the "Drummond," about August 25. For purposes of comparison, it may be said that the commerce from this country to South Africa now aggregates about 8000 tons each month. This business, we are told, when first opened up by sailing vessels sent out by Norton & Son 12 years ago, amounted to about 1200 to 1500 tons each month.

### Trade with Argentina and Uruguay.

Traffic with River Plate and Parana River ports, *i.e.*, Montevideo, Buenos Ayres and Rosario, and La Plata, Boca, Colastine, San Nicholas and Bahia Blanca, continues fairly good. There are now three sailings a month, mutually arranged by the Norton and Lamport & Holt lines, so as to insure the departure of a steamer about every ten days. It is believed this will continue until their summer business on Agricultural Implements, &c., is over with, ending about November 1. After that date the schedule will be semi-monthly clearances as heretofore. Norton & Co. have the steamships "Freshfield," cargo capacity, 4000 tons, July 25; "Etona," 3500 tons, August 15; "Merida," 3300 tons, August 25, followed by the "Delcomyn," September 15, and "Manitoba," September 25. The Lamport & Holt line, Paul F. Gerhard & Co., freight agents, 19 Whitehall street, alternate their steamers as stated with sailings once a month. They announce the steamer "Maskelyne," August 4, for the

same ports, with others to be announced later.

### South American Trade.

F. Porter Thayer, 18 Warren street, New York, in commenting on trade prospects in South America as they came under his observation during a trip of some months' duration, begun November 25, last, refers to much of interest to manufacturers.

First of all he emphasizes the need of better means of transportation, although much has been accomplished by the several steamship lines put on within a year or so. These are mainly cargo boats, with rather indifferent accommodations for passengers. England, Germany, France, Spain and Italy have about nine lines of steamers carrying passengers, mail and cargo, aggregating 60 sailings a month. We also need banking facilities, the countries named all having banks there, while the United States has none. He named many wealthy and responsible business houses in Montevideo, Buenos Ayres, Rosario, Valparaiso, &c., with whom a profitable business could be done. He places the Argentine Republic second to the United States in exportable surplus of grain, and gives as his belief that in ten years more will excel us. (Ex-United States Minister to Argentina, J. R. G. Pitkin, recently stated in a speech that that country had increased its surplus of wheat for export from 5,000,000 to 90,000,000 bushels in the last ten years.) They have great stretches of virgin soil suitable for raising wheat, than which none better can be found, up the River Plate and Parana River. These large bodies of water are navigable by ocean going vessels. Shipments abroad are not burdened with expensive interior freights to the seaboard, and there is no breaking of bulk. They also raise maize (or corn). What they need most is immigration, their population being about 5,000,000, while there is room for 25,000,000. With a more solid government and better financial condition he believes they are bound to go ahead.

They have good railroads and Mr. Thayer was informed by a railroad official of the country that England had an investment of £75,000,000 sterling therein the railroad system, which, from another authoritative source, aggregates £200,000,000 by including harbor works and steamship lines.

He considers the Argentine Republic one of the greatest outlets for manufactured products on the globe, and the market is naturally ours. Their supplies of coal and iron are drawn largely from Great Britain, while lumber, illuminating oil, agricultural implements, &c., go from America.

In Hardware and small Tools we are every year taking trade away from England. There is hardly anything produced here but can be marketed there with proper and persistent effort. If they bid fair to take away our market for grain, we should recoup ourselves by supplying them with manufactured goods.



Mr. Thayer stopped first at Montevideo, where he established an agency for Uruguay with J. K. Theobald & Co. In Buenos Ayres it was given to the old house of Thomas Drysdale & Co. for Argentina. In Valparaiso the territory of the west coast was placed with Browne, Béeche & Co., all of whom are prominent houses in their respective sections.

#### Export Agency.

The Manufacturers' Export Agency Company, 73 Pearl street, New York, C. K. Turner, manager, is another competitor for that class of foreign business which comes from abroad through regular commission houses here, no direct business being accepted. The company at present represent about 20 manufacturing interests whose lines do not conflict, among which we note: T. Rowland's Sons, Shovels, Standard Axe & Tool Works, Irwin Auger Bit Company, Sheldon Axle Company, Western Wheel Works, Bicycles, Andrew B. Hendryx Company, Bird Cages, and Chadborn & Coldwell Mfg. Company, Lawn Mowers. Their purpose is to influence the placing of orders with the concerns whose interests they represent, by quoting prices, furnishing information, &c. Samples of the goods dealt in are displayed in showrooms, and catalogues and trade literature are kept on hand for distribution. Orders are sent direct by the commission houses to the manufacturers, who ship and bill the goods to the purchasers, payments taking the same channels. The compensation is strictly on a salary basis. Mr. Turner was for 24 years prominent in what is now known as the Coombs, Crosby & Eddy Company.

#### Items.

Reading Hardware Company, 96-98 Reade street, New York, have engaged the services of A. B. Harrison, who will take charge of their export business. The company have advised exporters that all orders intended for shipment abroad will receive his personal attention. Mr. Harrison for many years had full control of Sargent & Co.'s export department.

One of the most prominent export houses in New York, who deal extensively with South America and Europe, recently had an inquiry from one of the State governments of Brazil for catalogues of Iron Kiosks and River Bridges. It was intimated that preference would be given to American goods over those of European manufacture. The Kiosks are a kind of summer house or pavilion supported by pillars, much used in hot countries.

Welding Ring of the shipping house of Mailler & Quereau, 31-35 Stone street, New York, who left here on business for the concern last February, has visited Auckland, Lyttleton, Wellington and Dunedin in New Zealand, Melbourne, Sydney, Brisbane, Townsville and Newcastle in Australia. Going via San Francisco he is returning by way of China and

Japan. He expected to leave Yokohama July 13 by steamer for Vancouver, B. C., and is expected in New York early in August.

E. Ward, one of the *attachés* of the well known export house G. Amsinck & Co., 148 Pearl street, New York, returned recently from a trip to Brazil, which was begun in May, 1893. He went to Para in their interest, spending most of his time in that city.

R. W. Forbes & Son, exporters to Australasia, who for 42 years have been at 14 South William street, New York (which building a long time ago, we are told, was the Goelet homestead), are now comfortably located in a commodious suite of offices in the Produce Exchange Annex, sixth floor.

Charles B. Corwin is arranging with manufacturers of goods suitable for export to represent their interests among buyers in New York who purchase Hardware and analogous goods for shipment abroad. He has secured office accommodations in the Kemble building, 15-25 Whitehall street. For a term of years he was secretary of the Henry B. Newhall Company, going from that concern into the exporting house of Stevens, Corwin & Co., as managing partner. On the dissolution of the latter firm he became manager of the Hardware department of the export house of Flint & Co., which position he held two years.

Mailler & Quereau, owners of the Kangaroo Line of Packets for Australia and New Zealand, established in 1853, have vacated the offices occupied by them for upward of a quarter of a century, at 58 Stone street, New York. They can now be found in a fine suite of rooms in the new Curtis Building, 31-35 Stone street and 33-37 South William street.

#### Trade Items.

OVERMAN WHEEL COMPANY, Chicopee Falls, Mass., manufacturers of the Victor Bicycle, have commenced the production of Baseballs, Ball Bats, Tennis and Racquet Balls, Footballs, Knit Goods, Sporting Shoes, etc., and we are advised the line will be extended to embrace what is commonly accepted as a full assortment of Sporting Goods. We are informed that no item in the line bearing their trade-mark, and sold as Victor stuff, will be anything other than the best they can make. Their office in New York, recently fitted up, is at 23 Warren street.

THE AMERICAN LAMP & BRASS COMPANY, formerly at 45 College place, New York, have moved into larger and more commodious quarters, at 44 Park place, near Church street. They have the street floor, 65 x 25 feet in dimensions, and have fitted it up handsomely with a view to displaying their large assortment of Banquet, Library, Table and other Lamps. Their Columbian exhibit at Chicago has been brought to New York and is now in place in their new quarters. A new plan has been adopted for displaying

hanging Lamps by suspending from side walls by means of artistic hooks.

EXCELSIOR CUTLERY COMPANY, Swedish Razor Company, Worcester, Mass., in their advertisement in this issue, call attention to the quality of the Razors which they are making, every Razor, it is stated, being hand forged, tested and warranted. It will be observed that they refer to their factory as the only one in the United States making Razors by hand from beginning to end.

THE TROWEL MANUFACTURING PLANT of William Rose & Bros., Sharon Hill, Pa., after a shut down of three months, will resume operations on or about July 25. Orders will be filled as heretofore.

AMONG the Special Notices in this issue is one in which the advertiser offers for sale his Hardware stock and store. The business is referred to as a very desirable one and is located in a Michigan town of about 4000 people. The reason assigned for selling is that the advertiser is desirous of entering another line of business.

#### Improvement in Screw and Bolt Cases.

THE SMITH BROS. HARDWARE COMPANY of Columbus, Ohio, are now making the Hunter & Smith Screw and Bolt Cases, which they advise us they have recently materially improved in the way of finish. They also make a combination case, which holds the leading sizes in Screws and Tire Bolts and small sized Carriage Bolts. Its capacity is indicated in the fact that it carries a good assortment of  $\frac{5}{8}$ ,  $\frac{3}{4}$ ,  $\frac{7}{8}$ ,  $1\frac{1}{4}$ ,  $1\frac{1}{2}$ ,  $1\frac{3}{4}$  and 2-inch Screws, and the leading sizes of  $\frac{1}{8}$  and  $\frac{1}{4}$ -inch Tire Bolts, and also  $\frac{1}{4}$ ,  $\frac{5}{16}$  and  $\frac{3}{8}$ -inch Carriage Bolts. It is referred to as especially adapted for the use of small dealers who do not care to carry the smallest and largest sizes of Screws, and will doubtless be found to meet their requirements admirably.

#### Kelly Axe Mfg. Company.

KELLY AXE MFG. COMPANY have just established headquarters at 82 Chambers street, New York. W. H. Trabue, who is one of the principal stockholders, will be in charge as manager of the Eastern department and will also attend to export trade. Formerly at Louisville, this company some time ago decided to double the capacity of their plant, and the necessary ground not being available at Louisville, they secured 20 acres at Alexandria, Ind., in the natural gas belt. They have erected a series of brick and iron structures, covering, we are told, about 10 acres of ground and now have a producing capacity of about 300 dozen Axes a day. There are spurs of the Big Four Railroad running into the works. Free natural gas was one of the inducements for changing their site, as fuel, they say, amounts to 14 per cent. of cost in the production of their goods. The plant was started up July 4 for the first. They are now shipping from both Louisville and Alexandria, which is about 100 miles north of Louisville. This business, begun 20 years ago, has grown from a capacity then of five dozen

Axes a day. The machinery in use is of new and improved patterns, some of which is the invention of officers of the company. The natural gas well in the yard is said to supply fuel at a pressure of 350 pounds per square inch. Another feature referred to is their close proximity to the stone quarries, which product enters largely into the manufacture of Axes.

## Price-Lists, Circulars, &c.

**COLT'S PATENT FIRE ARMS MFG. COMPANY**, Hartford, Conn.: 4 page circular relating to their well known Arms, in which illustrations are given of Colt's Revolvers adopted by the War and Navy Departments of the United States, Colt's new Lightning Magazine Rifles, and Colt's new Hammerless Double Barrel Shot Guns.

**SCOVILL MFG. COMPANY**, Waterbury, Conn., and 423 Broome street, New York: 1894-1895 catalogue of Aluminum fancy articles. The catalogue does not show all the patterns which the company make, but will enable the trade to select an attractive line of Aluminum Ware. Among the articles of which illustrations are given are Ash, Pin, Pen and Card Trays, Photograph Frames, Puff Boxes, Perfume Bottles, Hair and Clothes Brushes, Mirrors, Drinking Cups, Card Cases, Paper Knives, &c. A price-list accompanies the catalogue.

**F. E. MYERS & BRO.**, Ashland, Ohio: Catalogue No. 25, Pumps and Hay Tools. The manufacturers remark that the catalogue illustrates a new, novel, complete and practical line of Pumps and Hay Tools. Particular attention is called to Cylinders, Valves, Buckets, Steel Tracks, Carriers, also their design, the material used in their construction, their finish and adaptation. The catalogue contains prices, telegraph codes, figure index and general index.

**THE BEVIN BROS. MFG. COMPANY**, East Hampton, Conn.: Bells. Their illustrated catalogue and price-list for 1894-95 shows Rim Sleigh Bells, Body Straps, Martingale Straps; Globe, double throat and band Sleigh Bells; Shaft Chimes, Saddle Chimes, Hame Attachments, Plumes; House, Team and Car Bells; Hand, Alarm, Gong and Factory Bells. The company have been engaged in the manufacture of Bells continuously for over 60 years, and a view of the plant is presented in the early part of the catalogue. Engravings are also presented of Abner G. Bevin, president of the company, who is 84 years of age, and Philo Bevin, late treasurer of the company, who died September 5, 1893, aged 80 years.

**KNAPP & SPALDING Co.**, Sioux City, Iowa: Hardware and Sporting Goods. An illustrated catalogue of 63 pages devoted to their Gun department shows, with prices, Guns, Rifles, Revolvers, Cartridges, Shells, Gun Implements, Hunters' Clothing, Dog Collars, Bicycles, &c.

**PRIESTLEY EXPRESS WAGON & SLEIGH COMPANY**, Grand Rapids, Mich., Heimbuecher & Webber, agents, 200 American Central Building, St. Louis, Mo.: Fall catalogue 1894. The catalogue illustrates the line of Sleighs, Sleds, Coasters, Ladders, Ironing Boards and Toy Carts which the company are putting on the market.

**WM. CHISHOLM & SONS**, proprietors of the Chisholm Steel Shovel Works, Cleveland, Ohio: Illustrated catalogue dated July 1, 1894. This catalogue covers the well-known line of Steel Shovels, Spades and Scoops which they

are manufacturing. Attention is called to the further extension of their line of Socket goods, especially of Thistle and Zenith brands, making the line exceptionally large and complete.

**WORCESTER WRINGER COMPANY**, Worcester, Mass.: Mop Wringer. The company issue a catalogue relating to their Worcester Mop Wringer, the special features of which are illustrated and described. The Bucket is described as made of heavy galvanized steel, with all parts of malleable iron, riveted together with strong rivets, and made, it is stated, in the most thorough manner. The rolls are made of hard wood and chemically treated, and are so attached to the Wringer that it is claimed they cannot become loose or get out of order.

## It Is Reported—

### Colorado.

That burglars broke into the Hardware store of Dickinson & Co., LEADVILLE, on the 4th inst., and stole several hundred dollars' worth of goods, principally Razors and Revolvers.

### Georgia.

That James Watt and P. N. Harley have associated themselves under the name of the Watt-Harley Hardware Company, and will open a new store at WAYCROSS during August. The capital of the company is \$10,000. Mr. Watt is president of the company, and Mr. Harley secretary and treasurer.

### Idaho.

That T. C. Egleston & Co. have succeeded the S. M. Coffin Commercial Company in the Hardware, &c., business, at CALDWELL, Mr. Coffin having retired. The business will be conducted on the same lines as heretofore, some of which will be increased to meet the growing demand for ranch and mining supplies in Southern Idaho.

### Indiana.

That J. F. Price & Co. have opened a new Hardware store at NORTH LIBERTY.

### Iowa.

That fire at OLLIE on the 1st inst., destroyed the Hardware store of J. W. Roop.

That the Hardware firm of Dohrman & Elder of PLYMOUTH was recently dissolved. C. F. Dohrman has purchased A. A. Elder's interest and will continue the business at the old stand.

That the Hardware store of Shede & Co., UTE, was robbed on the 2d inst. of about \$100 worth of Pocket Knives and Revolvers.

That G. W. Sheldon's Hardware store, at DES MOINES was burglarized on the 4th inst. About \$100 worth of Knives and Revolvers were taken.

### Maine.

That J. J. Landers of BINGHAM has just completed a brick addition to his Hardware store.

### Massachusetts.

That J. Frank Tilton has purchased the Stove and House Furnishing business of N. O. Sawyer, AMESBURY. Mr. Tilton was formerly of NEWBURYPORT.

### Missouri.

That E. E. Chandler of the Chandler Pump Company, CEDAR RAPIDS, IA., has purchased a Hardware store at EXCELSIOR SPRINGS, and will take possession shortly.

### Nebraska.

That S. L. Sperry has purchased the Hardware business formerly conducted by J. D. Garmire at HEBRON.

### New York.

That Beers & Co.'s Hardware store at ELLENVILLE, was destroyed by fire on the 5th ult.

That James C. Rogerson has admitted his son to partnership in his Hardware

business at HUDSON. The style is now J. C. Rogerson & Son.

That W. G. Alling has moved his Hardware stock from SILVER CREEK to DUNKIRK, where he has recently purchased a store.

That Henry P. Taylor of CHIPPEWA BAY has purchased the stock of W. T. Stiles at HAMMOND, and will continue the Hardware and Tin business at the old stand.

That the Hardware merchants of WATERTOWN have signed an agreement to close at 6 p.m. from July 1 to January 1, excepting one week during the holidays.

### Ohio.

That Pullman & Parrot's Hardware store, at GREENFIELD, was burned out on the 15th inst.

That in a large fire at ST. CLAIRSVILLE on the 10th inst. the Hardware store owned by W. O. Umstead was destroyed.

That the CLYDE Hardware store of Jackson & Sons was burned out on the 4th inst.

### Oklahoma.

That C. T. Colman has succeeded Colman & Thomson in the Hardware business at POND CREEK.

### Texas.

That the Hardware firm of Bryant Bros. of ANSON have sold their stock of goods to Calvert & Penick.

### Vermont.

That John A. Manson & Co. is the style of a Hardware firm who in the fall will open a new Hardware store at BURLINGTON. Mr. Manson was formerly in the employ of George I. Hagar, but for the past eight years he has been traveling representative in the South and West for the manufacturing firm of Tower & Lyon of New York.

*The Hardware trade throughout the country are requested to report business changes, improvements and other matters of trade interest suitable for mention in this department.*

## Paints and Colors.

*It should be understood that the prices quoted in this column are strictly those current in the wholesale market, and that higher prices are paid for retail lots. The quality of goods frequently necessitates a considerable range of prices.*

**White Lead.**—Comparatively few and only small orders for Dry White Lead have been placed in this market. The most attractive inducements in the way of special prices fail to arouse anything in the nature of lively buying interest. Lead in Oil has been quite as dull, if, indeed, not even slower. Competition continues keen, leaving the market in a weak as well as dull condition, but prices show no radical change for the period under review.

**Red Lead.**—Orders for foreign brands have been placed in a very indifferent manner, and the volume of business continues to fall behind the summer season average. Interest in domestic brands is also very tame, neither jobbers nor grinders seeming to want other than rather small quantities. Prices are more or less in buyers' favor, but have undergone no decided change.

**Litharge.**—The demand from all quarters is still on a very moderate scale. There is no large buying and hardly the average movement of jobbing quantities is taking place. Foreign and domestic brands fare alike in this respect, leaving the market in a rather weak condition.

**Zincs.**—No change of importance has taken place. Grinders are slow in the matter of placing orders since there are some signs of lively competition between sellers of domestic and for-



eign makes. Nothing in the nature of formidable contest has developed thus far, however, and although the market has a rather weak undertone prices are not positively lower.

**Colors.**—Prices for nearly everything in the line of Dry Colors are more or less unsettled. There have been no radical changes, however, nor any move calculated to stimulate business. As for business, the general report is that it has been strictly routine and moderate, all told. Oil Colors and ready mixed Paints have moved in routine way only and chiefly at prices current for some time past.

#### Oils and Turpentine.

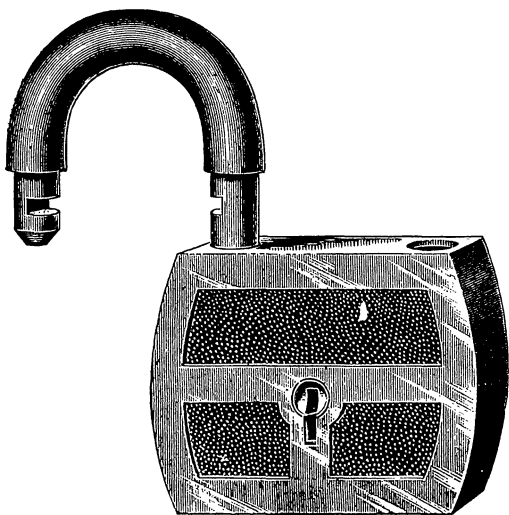
**Linseed Oil.**—No changes in prices have been made by city crushers or by sales agents of out of town brands. The Oil position is considered strong and the market for raw material even more so, but distribution of Oil has

**Fish Oils.**—There have been no new developments in the market for Menhaden, Sperm or Whale products. Outside of routine jobbing parcels of pressed and bleached products little has been done and the sales effected were at about the same prices that have ruled for several weeks.

**Spirits Turpentine.**—The market is weaker and rather unsettled. Sales have been made here at 29½¢ for regular and 30¢ @ 30½¢ for machine barrels and it is claimed that the Savannah combination has been disjoined by recent heavy accumulation of stock. Buyers who draw upon the New York market purchase very indifferently.

#### Gem Padlock.

Safe Padlock Works, Lancaster, Pa., are putting on the market the Gem padlock as here shown. The cut, which is



Gem Padlock, Open.

been below the average latterly and an accumulation of supply in first hands has taken place that is disappointingly large, to say the least. Orders received here have been of moderate size for the most part and rather below the average in aggregate amount. So-called new process raw Oil is offered at 51¢ @ 52¢, while the figures for old process are kept at 54¢ for American and 55¢ for Calcutta seed product, boiled Oil commanding the usual difference of 3¢ ½ gallon.

**Cotton Seed Oil.**—The situation in this branch of the market has not changed to any great extent. Exporters have made comparatively few new purchases and appear to be very indifferent. Large home consumers have purchased sparingly as well. Still the offering is not urgent and prices remain quite steady in the face of a rather dull market.

full size, represents it with flat steel key, it being also made with bronze barrel key. The locks are fitted with tumblers and are made from solid bronze, are automatic in opening and closing and are warranted by the makers. Two keys are packed with each lock. John T. Ryan, 96 Chambers street, is in charge of their New York office.

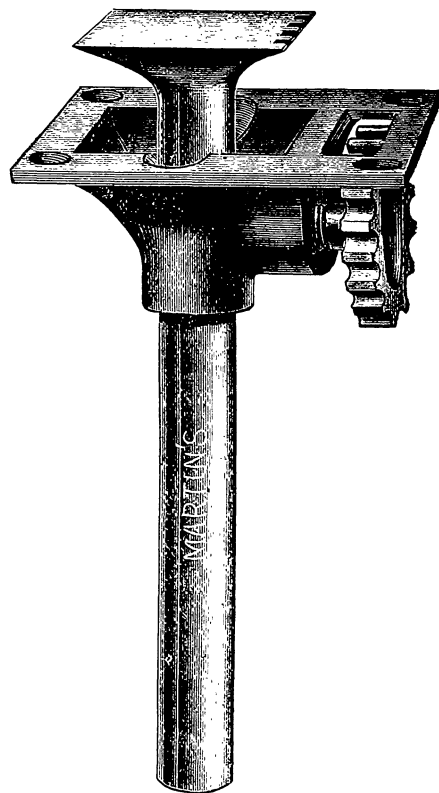
#### Joiners' Rapid Clamp.

The cut herewith represents a clamp put on the market by the Samuel C. Tatum Company, Cincinnati, Ohio. The clamp is described as being made entirely of iron and steel, of quite modern type. The bar is smooth without notches and the tail stock or sliding part can instantly be set against the

any tool chest. This pattern is made in four sizes, to open 15, 18, 20 or 24 inches. It is stated that all bars are readily interchangeable and that in case of breakage, as the head is bolted to the bar, any parts can easily be replaced. A much heavier and more powerful clamp is made for large work, using 1 x 1½-inch steel for the bar, with ½-inch screw and crank handle. These clamps are made in three sizes, to open 3, 4 and 5 feet. For car works and other requirements where an especially strong and long clamp is needed, the company can also furnish a somewhat heavier clamp of the same principle, with a steel bar 1½ x 1¼ inch, and a proportionately strong screw and crank handle. Three sizes of the largest clamps are made to open 6, 7 and 8 feet.

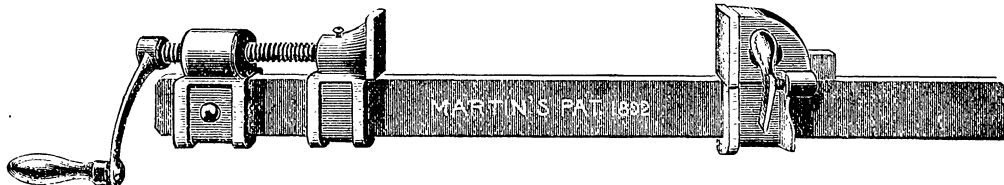
#### Tatum's Bench Stop.

The Samuel C. Tatum Company, Cincinnati, Ohio, are offering the bench stop, shown one-sixth of its actual size



Tatum's Bench Stop.

in the accompanying cut. The manufacturers state that the stop is easily adjusted to any angle that the work



Joiners' Rapid Clamp.

**Lard Oil.**—A dull sort of market has been experienced and the existing conditions afford no sign of radical change in the immediate future. In any event the relation of supply and demand seems to lie normal and no speculative interest is visible. Prices stand at about 56¢ for prime quality, present make.

work, which, it is remarked, is a saving of much time to the operator. The bar is made to pass through the head piece, retaining its full strength and lessening the possibility of breaking. The 15 to 24-inch clamps have 1½ x 1¼-inch steel bars with crank handle and ½-inch screw, and are designed to be carried in

requires; that it can be turned completely around to avoid marring the work with the teeth on the stop; that it can be raised or lowered instantly, the adjustment being accomplished by means of the fluted wheel sunk below the surface, and that it will not clog with shavings or dust.

## Coin or Change Deliverer.

The Francis T. Witte Hardware Company, 106 Chambers street, New York, are offering a device for delivering change into the hand, as shown in Fig. 1. The machine is mounted on an

up of the separate pieces of coin and that it is unnecessary to remove the glove from the hand when receiving the change.

One of the curious things of trade was related by an *attaché* of one of the old Australian houses the other day.



Fig. 1.—Coin or Change Deliverer.

ornamented base. The exterior surfaces of the bowl and cups are highly nickel plated and well finished, while the change plate and the inside of the cups are finished in white porcelain. In operation the coin change is placed by the cashier on the change plate, when

Speaking of plaster, of which much has been sent to the colonies, they naturally thought it was all used for building purposes, but were surprised to learn that dentists there consumed a good portion of it in making molds for plates on which to mount false teeth. At

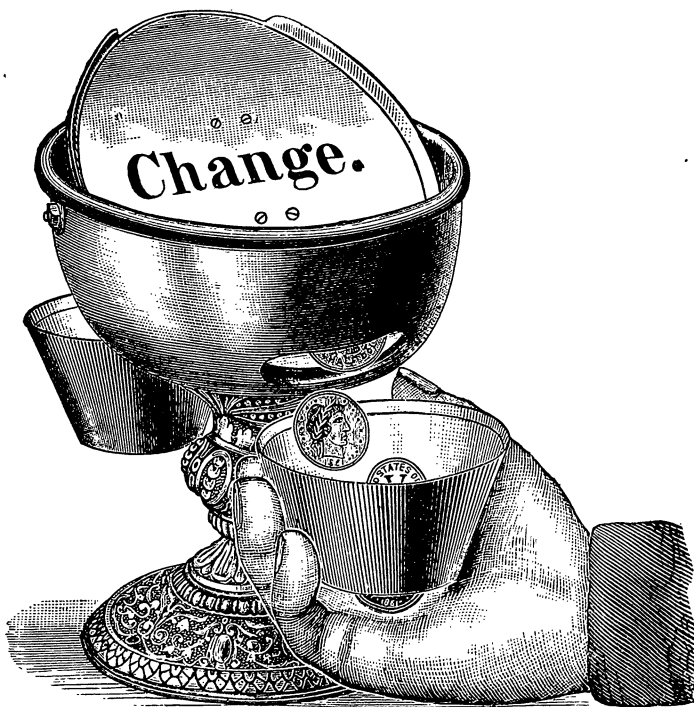


Fig. 2.—Change Deliverer in Use.

the customer by lifting the cup on either side receives all the change in the hand, as shown in Fig. 2. The advantages claimed for the device are as follows: That it relieves the customer from a hurried and vexatious picking

another time, getting quite large orders for broom handles, they discovered eventually that they were utilized in connection with wire for making fences, the parallel pattern of handle being used, instead of those that taper.

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# Current Hardware Prices.

JULY 18, 1894.

NOTE.—The quotations given below represent Current Hardware Prices, whether made by manufacturers or jobbers. They apply to such quantities of goods as are usually purchased by retail Hardware merchants. Very small orders and broken packages often command higher prices.

The character @ is used to indicate a range of price: thus discount 50 & 10% @ 50 & 10 & 5%, signifies that the goods in question are sold at prices ranging from 50 & 10% to 50 & 10 & 5%.

## Adjusters, Blind—

Domestic.....\$ dos \$3.00, 83% @ 83% & 10%  
Excelstor.....\$ dos \$10.00.....60 & 10 & 2%  
North's.....\$ dos \$11.00.....11 @ 11%  
Zimmerman's—See Fasteners Blind.

## Ammunition—See Caps, Cartridges, Shells, &c.

## Anvils—

### American—

Eagle Anvils, \$ 9.....15 @ 15 & 5%  
Horse shoe brand, Wrought.....11 @ 11%  
Moore & Barnes Mfg. Co.....33% & 5%

### Imported—

Armitage Mouse Hole.....9% @ 10%  
B. & H., machine finished.....10% @ 10%  
Trencon.....9% @ 10%  
Wilkinson's.....10% @ 10%  
Peter Wright's.....10% @ 11%

## Anvil Vise and Drill—

Allen Anvil and Vise \$3.00.....40 & 10%  
Cheney Anvil and Vise.....25%  
Willers Falls Co., \$18.00.....20%  
Holt's.....40 @ 40 & 10%

## Apple Parers—See Parers Apple, &c.

## Augers and Bits—

Boring Machine Augers.....70 @ 70 & 10%  
Car Bits, 12-in. twist.....50%  
Common Augers and Bits.....70 @ 70 & 10%  
Cincinnati Bell-Hangers' Bits.....80 & 10  
Fenster Pat. Auger Bits.....15%  
Jennings' Pattern Car Bits.....40%  
Jennings' Pattern Auger Bits.....40%  
J. E. Jennings & Co., No. 10, extension  
lip.....40%  
O. E. Jennings & Co., No. 30.....60%  
O. E. Jennings & Co., Auger Bits, \$ set  
82% quarters, No. 5, \$5; No. 30, \$3.50, 25%  
Russell Jennings' Augers and Bits, 25 & 10%  
Lewis' Patent Single Twist.....40%  
L'Hommedieu Car Bit.....15 & 10%  
Pugh's Black.....20%  
Pugh's Jennings Pattern.....30%  
Snell's Bits.....60 & 5 @ 60 & 10%

## Bit Stock Drills—

Cleveland.....50 & 10 & 5%  
Cincinnati, for wood.....30 & 10  
Cincinnati, for metal.....40 & 10  
Morse Twist Drills.....50 & 10 & 5%  
New Process Twist Drill Co.....50 & 10 & 5%  
Standard.....50 & 10 & 5%  
Syracuse, for metal.....50 & 10  
Syracuse, for wood (wood list), 30 @ 30 & 10%

## Expansive Bits—

Clark's small, \$18; large, \$28. 35 @ 35 & 10%  
Ives' No. 4, \$ dos \$80.....40%  
Steer's, No. 1, \$28; No. 2, \$15.....35 @ 40%  
Stearns' No. 2, \$45.....20%  
Swan's.....40%

## Gimlet Bits—

See.....25 @ 25 & 10%  
Common.....\$ gross \$2.50 @ \$3.00  
Diamond.....\$ dos \$1.25.....40 & 10%  
Double Cut:  
Hartwell's.....\$ gro., \$10.00.....40 & 10%  
Doughlass'.....40 & 10 @ 40 & 10%  
Ives.....60 & 10 @ 60 & 10 & 5%  
Shepardson's.....45 & 10 @ 45 & 10 & 5%

## Hollow Augers—

Bonney's Adjustable, \$ dos \$48.....50%  
Cincinnati Adjustable.....25 & 10%  
Cincinnati Standard.....25 & 10%  
Douglass'.....33% @ 33% & 10%  
French, Swift & Co. (Beecher).....33% @ 33% & 10%  
Ives'.....33% @ 33% & 10%  
Ives' Expansive, each \$4.50.....50 & 5%  
Stearns'.....20 & 10%  
Universal Expansive, each \$4.50.....20%  
Wood's, \$ doz., \$48.....25 & 10%

## Ship Augers and Bits—

L'Hommedieu's.....15 & 10 @ 15 & 10 & 5%  
Snell's.....25 @ 25 & 10%  
Snell's Ship Auger Patt'n Car Bits.....15 & 10 @ 15 & 10 & 5%  
Watrous'.....25 @ 25 & 10%

## Awl Hafts—See Hafts, Awl.

## Awls—

Brad, Handled.....\$ gr. \$2.50 @ \$3.00  
Brad, Shouldered.....\$ gr. \$1.30 @ \$1.40  
Peg, Pat.....\$ gr. \$1.50 @ \$1.55  
Peg, Should.....\$ gr. \$1.50 @ \$1.55  
Scratch, Handled.....\$ gr. \$4.00 @ \$4.50  
Scratch, Socket.....\$ dos. \$1.10 @ \$1.20

## Awl and Tool Sets—See Sets, Awl and Tool.

## Axes—

First quality, best brands.....\$6.00 @ \$6.50  
First quality, other brands.....5.50 @ 6.00  
Beveled add 60¢ per doz.

## Axle Grease—See Grease, Axle.

## Axles—

No. 1 Common.....3¢ @ 3 1/2¢  
No. 2 Common.....4¢ @ 4 1/2¢  
Nos. 7 to 14.....70%  
Nos. 15 to 28.....47%  
Nos. 19 to 22.....70%  
Concord Axles, loose collar.....4¢ @ 4 1/2¢  
Concord Axles, solid collar.....5¢ @ 5 1/2¢  
ubular Axles.....50¢

## Bag Holders—See Holders, Bag.

## Balances—

Sash—  
Caldwell, low list.....30%  
Pullman.....60%

## Spring—

Spring Balances.....40 @ 40 & 10%  
No. 2000 20 80  
Chatillon, \$ dos.....\$0.80 0.95 1.75 net  
Chatillon Straight Balances.....40 @ 40 & 10%  
Chatillon Circular Balances.....50 & 10%

## Barb Wire—See Wire, Barb.

## Bars—

### Crow—

Cast Steel.....\$ 2 1/2 @ 3 1/2  
Iron, Steel Points.....\$ 2 1/2 @ 2 3/4

### Basins, Wash—

Standard Fiberglass, No. 1, 10 1/2-in., \$1.80;  
12-inch, \$2.00; 13 1/2-inch, \$2.50; 15-inch,  
\$3.00.

### Beams, Scale—

Scale Beams, List Jan. 12, '82. 60 @ 10%  
Chatillon's No. 1.....60 & 10 & 5%  
Chatillon's No. 2.....50 & 10 @ 50 & 10 & 5%  
Custer's.....33%

## Beaters—

### Egg—

Bryant's.....\$ gross \$14.00  
Double (H. & R. Mfg. Co.), \$ gro., No. 0,  
\$12.00; No. 1, \$15.00; No. 2.....\$38.00  
Dover.....\$ dos \$1.00 @ \$1.20  
Dover (Standard Co.).....\$ dos \$1.00  
Duplex (Standard Co.).....\$ dos \$1.00  
Duplex Extra Heavy (Standard Co.).....\$ dos \$3.50  
Easy (H. & R. Mfg. Co.).....\$ gro \$12.00  
Improved Acme (H. & R. Mfg. Co.).....\$ gro \$9.00  
Silver & Co.....\$ dos \$5.50  
Spiral.....\$ gro \$4.25 @ \$4.50  
Triple (H. & R. Mfg. Co.).....\$ gro \$16.50

### Culinary—

Keystone, P. D. & Co., Each, No. 1, \$1;  
No. 2, \$2.....20%

## Bells—

### Cow—

Common Wrought.....60 & 10%  
Kentucky Durham.....70 & 10%  
Kentucky, Sargent's list.....70 & 10%  
Kentucky, "Star".....20 & 10%  
Texas Star.....50 & 10 @ 50 & 10 & 5%  
Western, Sargent's list.....70 & 10%

## Door—

Crane, Brooks'.....50 & 10 & 5%  
Crane, Cone's.....10%  
Crane, Connel's.....20 & 10%  
Gong, Abbe's.....33% @ 10%  
Gong, Barton's.....40 & 10 @ 50%  
Gong, Yankee.....45 & 10%  
Lever, R. & E. Mfg. Co.'s.....50 & 10 & 5%  
Lever, Sargent's.....50 & 10%  
Lever, Taylor's Bronzed or Plated.....net  
Lever, Taylor's Japanned.....25 & 10%  
Pull, Brook's.....50 & 10 & 5%

## Electric—

Bigelow & Dowse.....20 @ 20 & 10%  
Wollensak's.....20 @ 20 & 10%

## Hand—

Extra Heavy Brass.....70%  
Light Brass.....70 & 10 @ 70 & 10 & 5%  
Silver Chime.....33% @ 10%  
White.....70%  
Globe Cone's Patent.....25 & 10 @ 35%

## Miscellaneous—

Call.....45 @ 50%  
Steel Bells.....\$ 2 1/2 @ 3  
Farm Alloy Church and School Bells.....50%

## Bellows—

Blacksmiths'.....60 & 10 @ 10 & 70%  
Hand Bellows.....40 @ 10 & 50%  
Molders'.....40 & 10 @ 50%

## Beltting, Rubber—

Common Standard.....75 & 10 @ 75 & 10 & 5%  
Extra.....60 & 10 @ 50 & 70%  
Standard.....70 & 10 @ 75%  
N.Y.B. & P. Co., Carbon.....60 & 10 & 5%  
N.Y.B. & P. Co., Double Diamond.....60%  
N.Y.B. & P. Co., 1346 Para.....40 & 10%

## Bench Stops—See Stops, Bench

## Benders and Upsetters,

### Tire—

Detroit Perfected Tire Bender 15 @ 15 & 10%  
Green River Tire Benders and Upsetters.....30%  
Stoddard's Lightning Tire Upsetters.....15%

## Bits—

Auger, Gimlet, Bit Stock Drills, &c.,  
see Augers and Bits.

## Bit Holders—See Holders.

## Blind Adjusters—See Ad-

### justers, Blind.

## Blind Fasteners—See Fasten-

### ers, Blind.

## Blind Staples—See Staples,

### Blind.

## Blocks—

Cleveland Block Co., Mal. Iron.....50 & 10 @ 80 & 10%  
Moore's Novelty, Mal. Iron.....50 @ 50 & 5%  
Swiss Grip Steel Machine Block 2 1/2 @ 2 1/2 & 10%  
See also Machines, Hoisting.

## Bolts—

### Carriage, Machine, &c.—

Com. list June 10, '94.....80 & 10 @ 80 & 10 & 5%  
Charter Oak, list Oct., 1883.....80%  
genuine Eagle, Norway, list Oct. '84.....80 & 5 @ 80 & 10%  
Eagle, Norway, list Oct. '84.....80 & 10 @ 80 & 10 & 15%  
Phila. pattern, list Oct. 7, '84.....80%  
R.B. & W., old list.....70%  
Bolt Ends, list Jan. 1, 1890.....80 & 10 @ 80 & 20%  
Machine, list Jan. 1, 1890.....80 & 10 @ 80 & 20%

### Door and Shutter—

Cast Iron Barrel Square, &c.....75 & 10 @ 75 & 10 & 5%  
Cast Iron Chain (Sargent's list).....65 & 10 @ 65 & 10 & 5%  
Cast Iron Shutter Bolts, 75 & 10 @ 75 & 10 & 5%  
Ives' Patent Door Bolts, 60 & 10 @ 60 & 10 & 10%  
Wrought Barrel.....75 & 10 @ 80%  
W.R. B. K. Flush Common.....60 & 10 @ 60 & 10 & 10%  
W.R. B. Shutter, Brass Knob.....50 & 10 @ 50 & 10%  
W.R. B. Shutter, Sargent's list.....40 & 10%  
W.R. B. Shutter, all iron, Stanley's.....60% @ 70%  
Wrought Square.....75 & 10 @ 80%  
W.R. Sunk Flush, Sargent's list.....60 & 10%  
W.R. Sunk Flush, Stanley's list, 60 & 10%

### Stove and Plow—

Plow.....60 & 10 @ 60 & 10 & 10%  
Stove.....65 @ 70%  
R. B. & W., Plow.....65%

## Tire—

Common, list Feb. 28, '83.....70 @ 70 & 10%  
American Screw Company.....70%  
Norway, Phila., list Oct. 16, '84.....75%  
Eagle, Phila., list Oct. 16, '84.....80%  
Bay State, list Feb. 28, '83.....70%  
Franklin Moore Co.:  
Norway, Phila., list Oct. 16, '84.....75%  
Eagle, Phila., list Oct. 16, '84.....80%  
Empire, list Feb. 28, '83.....70%  
Port Chester Bolt and Nut Company:  
Empire list Feb. 28, '83.....70%  
Keystone, Philadel., list Oct. '84.....80%  
Norway, Phila., list Oct. '84.....75%  
R. B. & W., Philadel., list Oct. 16, '84.....80%

## Borers, Tap—

Common and Ring.....20 & 10%  
Clark's.....33% @ 35%  
Enterprise Mfg. Co.....25%  
Ives' Tap Borers.....33% @ 35%

## Boring Machines—See Ma-

### chines, Boring.

## Bow Pins—See Pins, Bow.

## Boxes, Letter—

Tatum's.....40

## Boxes, Wagon—

Per doz.....24%

## Boxes, Miter.

Spiker's Excelstor, 3 in. \$7.50, 4 in.  
\$8.50, 5 in. \$13.00, 6 in. \$15.00.....20%

## Braces—

NOTE.—Most Braces are sold at net prices.

Barber's.....50 & 10%  
Bartholomew's.....50 & 5%  
Common Ball, American.....\$1.00 @ \$1.10  
Davis Patent.....50 & 10%  
Fray's Genuine Spoford's.....50 & 10 & 5%  
Fray's Nos. 70 to 120, 81 to 123, 207 to 414  
50 & 10 & 5%  
Ives' New Haven Novelty.....70 @ 70 & 5%  
New Haven Ratchet.....60 & 5 @ 60 & 10%  
Barber Ratchet.....60 & 5 @ 60 & 10%  
Barber's.....60 & 5 @ 60 & 10%  
Spoford's.....60 & 5 @ 60 & 10%  
P. S. & W. Co., Peck's Patent.....60%  
Rose & Johnson.....50%

## Brackets—

Shelf, fancy.....70 @ 70 & 10%  
Sargent's list.....70 @ 70 & 10%  
Other makes at a wide range of prices.  
Shelf, plain.....65 @ 70%  
Regular, list.....60 & 10 @ 70 & 10%  
Sargent's list.....60 & 10 @ 70 & 10%  
Bradley Shelf Brackets.....70 & 10%

## Bright Wire Goods—See

### Wire.

Henls Self-Inch.....9 10 9x11  
Basting, \$ per doz.....\$4.50 5.50 6.50  
Morgan Odorless.....\$ dos. \$12.50  
New Haven.....50%  
Queen City.....33%  
Wire Goods Co.....65 & 10%

## Buckets, Well and Fire—

### See Pails, Galvanized.

## Bull Rings—See Rings, Bull.

## Butcher's Cleavers—See

### Cleavers, Butchers.

## Butts—

### Brass—

Cast Brass, Fast.....33% @ 10%  
Cast Brass, Loose Joint.....33% @ 10%  
Cast Brass, Tiebout's.....60%  
Wrought Brass.....80 & 10 @ 80 & 20%

### Cast Iron—

Fast Joint, Broad.....60 @ 60 & 5%  
Fast Joint Narrow.....60 @ 60 & 5%

## Loose Joint, Japanned.....75 & 10

## Loose Joint, Jap. with Acorns.....80%

## Loose Pin, Acorns.....

## Loose Pin, Acorns, Japanned.....

## Loose Pin, Acorns, Japanned, Plated Tips.....

## Loose Joint, Japanned.....

## Parliament Butts.....

## Wrought Steel—

### Fast Joint, Broad.....

### Fast Joint, Narrow.....

### Fast Joint, Lt. Narrow.....

### Inside Blind, Light.....

### Inside Blind, Regular.....

### Loose Joint, Broad.....

### Loose Pin.....

### Table Butts, Back Flaps, &c.....

### Bronzed Wrought Butts.....50 & 10 @ 50 & 10 & 5%

## Cages, Bird—

### Henry's Brass:

3000, 5000, 1100 series.....10%

1200 series.....40%

200, 300, 600 and 900 series.....40 & 10 @ 50%

Henry's Bronze:

700, 800 series.....40 & 10 @ 50%

Henry's Enameled.....40 & 10 @ 50%

## Callipers—See Compasses.

## Calks Toe—

Burke's, One Prong, Blunt.....4% @ 5%

Burke's, One Prong, Sharp.....5% @ 6%

Burke's, Two Prong, Blunt.....5% @ 6%

Burke's Two Prong, Sharp.....6% @ 7%

Gautier, One Prong, Blunt.....5% @ 6%

## Can Openers—See Openers, Can.

## Cans Milk—

S. S. & Co.: 5-gal., \$3.00; 8-gal., \$4.40;  
10-gal., \$4.75 each.....40 & 10

## Cans Oil—

Galvanized Blue Band, 1 gal., \$ dos. \$3.30

Galvanized Blue Band, 5 gal., Tip-Top, \$ dos. \$12.00

Galvanized Blue Band, 5 gal., Faucet, \$ dos. \$3.70

Glass Oil, Friend.....\$ dos. \$2.70

## Caps—Percussion—

Hicks & Goldmark's and Union Metallic Cartridge Co. \$ 1000

Eley's E. B.....5

**Chalk Lines—See Lines.****Checks, Door—**

Barley's ..... 20%  
 Unity ..... 20%  
**Chisels—**  
 Socket Framing and Firmer  
 Mix ..... 75¢ to 1.00

Ohio Tool Co. .... 75¢ to 1.00  
 P. S. & W. .... 75¢ to 1.00  
 Witherby ..... 30%

Buck Bros ..... 30%  
 Charles Buck ..... 30%  
 Douglass ..... 75¢ to 1.00  
 Merrill ..... 60¢ to 1.00  
 L. & J. White ..... 30% to 50%

**Tanged and Miscellaneous—**  
 Buck Bros ..... 30%  
 Charles Buck ..... 30%  
 Butchers ..... 40% to 50%  
 Spear & Jackson's ..... 50% to 60%  
 Tanged Firmers ..... 50% to 60%  
 L. & J. White, Tanged ..... 25% to 35%  
 Cold Chisels, fair quality, P. S. & W. .... 1.40 to 1.60

**Chucks—**  
 Beach Pat. .... each, \$8.00, 20%  
 Danbury ..... each, \$8.00, 30% to 35%  
 Graham Patent ..... 35%  
 Morse's Adjustable, each, \$7.00, 20% to 25%  
 Syracuse, Bais Pat. .... 25%

**Miner Patent Chucks—**  
 Combination Lathe Chucks ..... 40%  
 Drill Chucks ..... 25%  
 Independent Lathe Chucks ..... 40%  
 Planer Chucks ..... 20%  
 Universal Lathe Chucks ..... 40%

**Union Mfg. Co. .... 40%**  
 Combination ..... 40%  
 Independent ..... 40%  
 Universal ..... 40%  
 Victor ..... 35.50, 25%

**Churns—**  
 McDermald Star Barrel Churn, each  
 6 gal., \$2.00; 10 gal., \$2.75; 15 gal.,  
 \$3.00; 20 gal., \$3.50  
 Tiffin Union, each, 5 gal. \$3.25; 7 gal.,  
 \$3.75; 10 gal., \$4.25

**Clamps—**  
 Adjustable, Cincinnati ..... 15¢ to 10¢  
 Adjustable, Hammers ..... 15¢ to 15¢  
 Adjustable, Stearns' ..... 30¢ to 30¢  
 Barnes' Machine's Clamps ..... 35¢  
 Cabinet, Sargent's ..... 70¢ to 10¢  
 Carpenter's, Cincinnati ..... 25¢ to 10¢  
 Carriage Makers, P. S. & W. Co. .... 40¢ to 10¢  
 Carriage Makers, Sargent's ..... 75¢ to 75¢  
 Eberhard Mfg. Co. .... 40¢ to 40¢  
 Joiners' Clamps, Tatum's ..... 25¢ to 10¢  
 R. I. Tool Co.'s Wrought Iron ..... 25%  
 Saw Clamps, see Vises, Saw Filers  
 Stearns' Malleable, with Wrought Iron  
 Screw ..... 75¢ to 75¢  
 Warner's ..... 40¢ to 40¢

**Cleavers, Butchers—**  
 Beatty's ..... 40¢ to 40¢  
 Bradley's ..... 35¢ to 30%  
 Foster Bros. .... 30%  
 New Haven Edge Tool Co.'s ..... 30%  
 Nichols Bros. .... 30%  
 P. S. & W. .... 35¢ to 35¢  
 Schulte, Lohoff & Co. .... 40¢ to 40¢  
 L. & J. White ..... 25%

**Clips—**  
 Baker Axle Clips ..... 25%  
 Norway, Axle ..... 65¢ to 10¢  
 Norway Spring, B. Clips ..... 65¢ to 10¢  
 2d grade Norway Axle ..... 70%  
 Steel Felloe Clips ..... 70%  
 Superior Axle Clips ..... 70%  
 Wrought Iron Felloe Clips ..... 54¢

**Cloth and Netting, Wire—**  
 See Wire, &c.

**Cockeyes—** ..... 50%

**Cocks, Brass—**  
 Hardware List (Globe, Kerosene, Lever  
 Bibbs, Racking, &c.) ..... 60¢ to 60¢

**Coffee Mils—See Mills, Coffee.**

**Colars, Dog—**  
 Brass, Pope & Stevens' list ..... 40%  
 Chapman Mfg. Company, new list ..... 40%  
 Embossed, Gift, Pope & Stevens' list ..... 30¢ to 10¢  
 Leather, Pope & Stevens' list ..... 40%  
 Medford Fancy Goods Co. .... 40¢ to 40%

**Combs Curry—**  
 American Curry Comb Co. .... 35¢ to 40%  
 Fitches' ..... 50¢ to 1.00  
 Gibb's Magnetics ..... 25¢  
 Kohler's Humane ..... 1.75  
 Kohler's Magic Oscillating ..... 2.00  
 Rubber, per doz., 10.00 ..... 25%

**Compasses, Dividers &c—**  
 Dividers ..... 65%  
 Calipers, Call Patent Inside ..... 65%  
 Calipers, Double ..... 65%  
 Calipers, Inside or Outside ..... 65%  
 Calipers, Wing ..... 60%  
 Compasses ..... 50¢ to 50%

**Cord Sash—**  
 Braided, Crown Drab and Fancy, P.  
 S. & W. .... 30%  
 Braided, Crown White, P. S. & W. .... 50%  
 Cable Laid Italian Sash ..... 1.00 to 2.00  
 Common ..... 30% to 30%  
 Common Russia Sash ..... 1.25 to 1.50  
 Egyptian India Hemp, Braided ..... 2.00  
 India Cable Laid Sash ..... 1.15 to 1.25  
 Massachusetts White ..... 2.00 to 2.25  
 Ossawaun Mfg. ....  
 Crown, Solid Braided White, P. S. & W. .... 2.25  
 Crown, Drab and Fancy, P. S. & W. .... 2.00  
 Braided Giant Drab and Fancy, P. S. & W. .... 3.00  
 Braided, Giant, White, P. S. & W. .... 2.00  
 Patent, good quality ..... 1.00 to 1.15  
 Patent Russia Sash ..... 1.15 to 1.40  
 Ramon .....  
 Braided, Drab Cotton ..... 40%  
 Braided, Italian Hemp ..... 40%  
 Braided, Linen ..... 50%  
 Braided, White Cotton ..... 37%  
 Semper Idem, Braided, White ..... 25%  
 Silver Lake .....  
 A quality, Drab, 55¢ ..... 25%  
 A quality, White, 55¢ ..... 25%  
 B quality, Drab, 55¢ ..... 10%  
 B quality, White, 30¢ ..... 10%  
 Bryan Spring, Extra Braided, Drab, 39¢  
 Van Spring, Extra Braided, White, 34¢  
 V's Solid Braided .....  
 V's Vany, Drab ..... 27%

**Crackers, Nut—**  
 Acme .....  
 Japanned, P. S. & W. .... 50%  
 Nickel Plated, P. S. & W. .... 10%  
 Table (L. & B. Mfg. Co.) ..... 40%  
 Turner & Seymour Mfg. Co. .... 50%

**Cradles—** ..... 50¢ to 50¢

**Crayons—**  
 White Crayons, P. S. & W. .... 60¢ to 60%  
 Cases, 100 gr., \$3.75 to \$4.25, at factory.  
 D. M. Steward Mfg. Co. ....  
 Metal Workers', P. S. & W. .... 2.50, 20 to 25%  
 Railroad, P. S. & W. .... 2.00, 20 to 25%  
 Rolling Mill, P. S. & W. .... 2.50, 20 to 25%  
 Soapstone Pencils, P. S. & W. .... 1.50, 20 to 35%  
 See also Chalk

**Creamery Pails—See Pails, Creamery.**

**Crow Bars—See Bars, Crow.**

**Curry Combs—**  
 See Combs, Curry.

**Cutters—**  
**Meat—**  
 American ..... 30%  
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**Draw Cut, each:**  
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**Halters**  
 Covert's Adj. Rope Halters.....40&25  
 Covert's Adj. Web Halters.....35&5&25  
 Covert's Hemp Horse and Cattle Tie.....50&10&25  
 Covert's Jute Cattle Ties.....70&10&25  
 Covert's Jute Horse Ties.....70&25  
 Covert's Rope, 7-18 in., Jute.....50&25  
 Covert's Rope, 3-4 in., Hemp.....50&25  
 Covert's Rope, Jute.....60&10&10&25  
 Covert's Saddlery Works Halters.....33&4  
 Covert's Saddlery Works Handy Web Halters.....33&4  
 Covert's Saddlery Works Horse and Cattle Ties.....33&4

**Hammers**  
**Handled Hammers**  
 Atha Tool Co.....50&10&60  
 Buffalo Hammer Co.....50&10&60  
 Humason & Beckley.....50&10&60  
 Verree.....40&10  
 Cheney's Chisel.....40&10  
 Cheney's Machinist & Riveting.....50&25  
 C. Hammond & Son.....40&10&60  
 Magnetic Tack, Nos. 1, 2, 3, 1.25, 1.50 & 1.75.....30&10  
 Maydole's, list Dec. 1, '85.....25&10&40  
 Peck, Stow & Wilcox.....40&10&50  
 Fayette R. Plumb.....40&10  
 Artisan's Choice, A. E. Nail.....40&10  
 Riveting, Engineers' and B. S. Hand.....60  
 Machinists' Hammers.....60&10  
 Regular Y. & P. A. E. Nail.....50  
 Other Hammers.....40&10&50  
 Sargent's.....40&10&50  
 Warner & Nobles, new list.....25&10

**Heavy Hammers and Sledge**  
 3 lb and under.....40  
 5 to 8 lb.....35  
 8 to 10 lb.....30  
 10 to 15 lb.....25  
 15 to 20 lb.....20  
 20 to 25 lb.....15  
 25 to 30 lb.....10  
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 990 to 995 lb.....5  
 995 to 1000 lb.....5

**Handcuffs and Leg Rings**  
 See Police Goods.

**Cross-Cut Saw Handles**  
 Atkins.....40  
 Champion.....15  
 Ely's Perfection.....15  
 Sensible \* doz. Pr.....50, 60, 50&10

**Iron, Wrought or Cast**  
 Barn Door, \* doz.....140  
 Bronze Iron Drop Latches.....70  
 Chest and Lifting.....70  
 Door or Thumb.....70  
 Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

**Wood**  
 Auger, assorted.....\* gr 5.00  
 Auger, large.....\* gr 7.00  
 File, assorted.....\* gr 2.75  
 Brad A.W.L.....\* gr 2.00  
 Apple Firmer Chisel, ass'd.....\* gr 5.00  
 Apple Firmer Chisel, large.....\* gr 6.00  
 Hickory Firmer Chisel, ass'd.....\* gr 4.50  
 Hickory Firmer Chisel, large.....\* gr 5.00  
 Socket Firmer Chisel, ass'd.....\* gr 5.00  
 Socket Firmer Chisel, large.....\* gr 5.00  
 Chisel, Fibre Head.....33  
 Hammer, Hatchet, Axe, &c.....40&10&25  
 Hoe, Rake, Shovel, &c.....60&10&25  
 Pat. Auger, Douglass.....\* set 1.25  
 Pat. Auger, Ives.....30&10  
 Pat. Auger, Swan's.....\* set 1.00  
 Saw and Plane.....40&10&50  
 J. B. Smith & Co's Pat. File.....50

**Hangers**  
 Barn Door, New England.....70&70&5  
 Barn Door, old patterns.....70&70&5  
 Barry.....50  
 Best Anti-Friction.....60&10&60&10&5  
 Boss.....60&10&60&10&5  
 Carrier Steel Anti-Friction.....10  
 Champion.....60&10  
 Chicago Anti-Friction.....80&10  
 Climax Anti-Friction.....55  
 Cincinnati Nos. 1, 2, 25; 3, 2, 50; 4, 2, 50.  
 Crescent.....60&10&10  
 Cronk's Patent Steel Covered.....60&10  
 Duplex (Wood Track).....60&10&5  
 Economy.....60&10  
 Hamilton Wrought Steel Track.....55  
 Interstate.....60&10&60  
 Kipper's.....60&10&10  
 Lane's New Standard.....60&10&5  
 Lane's Parlor.....60&10&5  
 Lane's Standard.....60&10&5  
 Lundy, Steel Parlor.....40  
 Magic.....45&10  
 Matchless.....50&10  
 Moody.....45  
 Moore's Baggage Car Door.....33&4  
 Moore's Elevator.....33&4  
 Moore's Railroad.....33&4  
 Nickel, Steel, Nos. 0, 25; 1, 20; 2, 15  
 40&10&50  
 Orleans Steel.....55  
 Paragon Nos. 5, 6, 7 and 8.....20&10  
 Pendulum, Payson's.....40&40&10  
 Perfection.....60&10&10  
 Richards.....30&10&10  
 Samson Steel Anti-Friction.....55  
 Star.....40&10&10  
 Stearns' Anti-Friction.....20&10&10  
 Stearns' Challenge.....25&10&10  
 Sterling.....60&10&60  
 Terry's Ideal.....50&10&10&5  
 Terry's Modern.....60&10&10&5  
 Terry's Shield.....60&10&60  
 Terry's Solid.....60&10&60  
 Terry's Wrought Single Strap.....60&10  
 Victor, No. 1, 15.00; No. 2, 15.00; No. 3, 18.00.....60&22  
 Warner's Pat.....20&10&10  
 Wild West.....45&10  
 Zenith for Wood Track.....55

**Harness Snaps**—See Snaps.  
**Hatchets**  
 American Axe and Tool Co.  
 Blood's.....40 & 10  
 Hunt's.....40 & 10  
 Hurd's.....40 & 10  
 Mann's.....40 & 10  
 Underhill's.....40 & 10  
 C. Hammond & Son.....40 & 10  
 Fayette R. Plumb.....40 & 10  
 Collins.....10  
 Hatchet Hammer Co.....10  
 Kelly's.....50 & 50  
 P. S. & W. Co.....50 & 50  
 Sargent's & Co.....50 & 50  
 S. White, Lohr & Co.....50 & 50  
 Ten Eyck Edge Tool Co.....50 & 50

**Hay and Straw Knives**  
 See Knives.  
**Hinges**  
**Blind Hinges**  
 Clark's  
 Nos. 1, 3, 5, 1888, Old Pattern.....75&10&5  
 Nos. 1 and 3, Tip Pattern.....75&10&5  
 No. 50 Buffalo Noiseless, 40, 60 and 65.....75&10&5  
 Buffalo Reversible, Nos. 3, 2, 1, 75&10&5  
 1 and 0.....70&5  
 No. 1, Cottage, for wood only.....80&10  
 No. 1, Diamond, for wood only.....80&5  
 Dixie L. & P., Nos. 3, 2, 1, 1, 1, 0, 0, 4 and 5.....75&10&5  
 No. 25, Empire Reversible.....75&10&5  
 Lull & Porter, Nos. 3, 2, 1, 1, 1, 0, 0, 4 and 5.....75&10&5  
 Mortise Gravity, Nos. 2, 4, 4, 6, 8, 9 and 10.....50&10&5  
 Butler.....50&10&5  
 Parker.....45 & 30  
 North's Automatic Blind Fixtures, No. 2, for Wood, \$9.00; No. 3, for Brick, \$11.50.....10  
 Reading's Gravity.....75&10&5  
 Sargent's, Nos. 1, 3, 5, 11, 12, 13.....75&10&5

**Gate Hinges**  
 Automatic.....\* doz \$12.50, 50  
 Clark's, Nos. 1, 2, 3.....60&10&60&10&5  
 N. E.....\* doz \$7.80, 60&10&10  
 N. E. Reversible.....\* doz \$5.60, 60&10&10  
 N. Y. State.....\* doz \$4.90, 60&10&10  
 Shepard's Nos. 1, 2, 3.....60&10&60&10&5  
 Western.....\* doz \$4.20, 90&10&10  
**Spring Hinges**  
 Aome.....30  
 American.....20  
 Bardsley's Patent Checking.....15  
 Barker's Double Acting.....25  
 Bommer's Japanised.....35  
 Bommer's All other kinds.....15  
 Buckman's.....60  
 Champion.....60  
 Chicago.....30  
 Columbia.....\* gross, \$10.00  
 Crown.....20  
 Foreport, No. 1.....\* gro. \$13.00  
 Foreport, No. 2.....\* gro. \$12.00  
 Geer's Spring and Blank Butts.....40  
 Gem.....20  
 Ideal No. 3.....\* gross \$8.00  
 J. G. C. Covered, \* gro. \$30.00, 50&5  
 Knoxall.....\* gross \$12.00  
 New Idea No. 1.....\* gross \$10.00  
 New Idea No. 2.....\* gross \$18.00  
 New Idea Dbl. Acting.....60  
 No. 10 Matchless.....45  
 No. 25 Unbreakable.....60  
 Oxford.....20  
 Reliable.....60  
 Rex.....\* gro. \$13.00  
 Roy.....60  
 Samson.....60&10&7  
 Stearns' Noiseless Floor Hinge.....\* set \$5.00, 20&10&30  
 Surprise.....\* gross, \$12.00  
 Union Mfg. Co.....25  
 Union Spring Hinge Co's list.....20  
 March 1888.....60  
 Wiles, No. 1, \* gro. \$16; No. 2, \* \$13

**Wrought Iron Hinges**  
 Corrug'd Strap and T. 60&10&60&10&5  
 Strap and T. list May 22, 1894.....60  
 Plate Hinges, 8, 10 & 12 in., \* doz.....60  
 "Providence" over 12 in., \* doz.....60  
 Rolled Blind Hinges, Nos. 32 and 34.....50&10  
 Rolled Blind Hinges, Nos. 232 and 234.....55&10  
 Rolled Plate.....70&10  
 Rolled Raised.....70&10  
 Screw Hook and Eye.....\* in. \* doz 75  
 \* 1/2 in. \* doz 75  
 \* 3/4 in. \* doz 75  
 \* 1 in. \* doz 75  
 \* 1 1/2 in. \* doz 75  
 \* 2 in. \* doz 75  
 \* 2 1/2 in. \* doz





**Pullers Nail-**

Polype. .... \$ doz., \$24.00, 40%  
 Economy. .... \$ doz., \$5.50@8.00  
 Giant, No. 1. .... \$ doz., \$18.00, 10%  
 Giant, No. 2. .... \$ doz., \$15.00, 10%  
 Pelican. .... \$ doz., \$9.00, 25%  
 Seranton. .... \$ doz., \$18.00, 33%  
 \$10%

**Pulleys-**

Brass Screw. .... 70%  
 Hay Fork, "Anti-Friction," 5 in. solid. .... \$7.70  
 Hay Fork, "F" Common and Patent. .... 20%  
 Hay Fork, Moore's Anti-Friction 5 in. .... 40%  
 Hay Fork, Wheel, \$ doz., \$12.00. .... 40%  
 Hay Fork, Reed's Self-Lubricating. .... 80%  
 Hay Fork, Solid Eye. .... \$4.00  
 Hay Fork, Stearns' Nos. 15, 25, 35, 45, 60, 60%  
 Hay Fork, Tarbox Pat. Iron. .... 20%  
 Hot House, Avington, &c. .... 20%  
 Japanned Clothes Line. .... 60%  
 Japanned Screw. .... 70%  
 Japanned Side. .... 70%  
 Moore's Ceiling or End, Anti-Friction. .... 40%  
 Moore's Dumb Waiter, Anti-Friction. .... 50%  
 Moore's Electric Light. .... 33%  
 Moore's Side, Anti-Friction. .... 50%  
 Sash (Auger Mortise). .... 60%  
 Common Sense. .... 60%  
 Empire. .... 60%  
 Aome. .... 60%  
 Ideal, Nos. 2, 4, 10 & 15. .... 60% less 1¢  
 Star. .... 60%  
 Ideal, or IXL No. 60. .... \$ doz., 25¢ net.  
 On bbl. lots extra 5%.  
 Shade Rack. .... 45%  
 Shepard's Niagara, No. 25. .... \$ doz 23¢ net  
 Tackle Blocks-See Blocks.

**Pumps-**

Olstern, Best Makers. .... 60%  
 Pitcher Spout, Best Makers. .... 70%  
 Pitcher Spout, Cheaper G'ds. .... 75%  
 Myers' Pumps, low list. .... 50%

**Punches-**

Avery's Revolving. .... 40%  
 Avery's Sawset and Punch-See Sawsets  
 Bemis & Call Co.'s Cast Steel Drive. .... 50%  
 Bemis & Call Co.'s Check. .... 55%  
 Bemis & Call Co.'s Spring. .... 50%  
 Bemis & Call Co.'s Springfield Socket. .... 55%  
 Niagara Hollow Punches. .... 20%  
 Niagara Solid Punches. .... 55%  
 Rice Hand Punches. .... 15%  
 Saddler's or Drive, good. .... \$ doz., 60¢  
 Spring, good quality. .... \$ doz., \$2.50@3.00  
 Spring, Leach's Pat. .... 55%  
 Solid Tinnings, P. S. & W. Co., \$ doz., \$1.44  
 Tinnings' Hollow Punches, P. S. & W. Co. .... 20%  
 Co. .... 20%  
 Co. .... 20%

**Rail-**

Barn Door, Light. In. .... \$1.75 2 1/2 2.75  
 Per 100 feet. .... \$2.00 2.50 3.00  
 B. D. for N. E. Hangers. .... \$2.00 2.50 3.00  
 Small. Med. Large.  
 Carrier, double braced, Steel Rail, 3 1/2 foot. .... \$3.00  
 Lundy Parlor Door, Planed Edge, 3 1/2 foot. .... \$3.00  
 Moody Steel Rail 3 1/2 ft. .... \$5.00  
 Moore's Steel Rail. .... 35%  
 Sliding Door, Bronzed Wrt Iron. .... \$ ft., 6¢  
 Sliding Door, Iron, Painted. .... \$ ft., 2¢  
 Sliding Door, Wrt Brass. .... \$ ft., 10¢  
 Terry's Steel Rail. .... \$ doz., \$1.00  
 Victor Track Rail, 7 1/2 foot. .... 50%

**Rakes-**

Cast Steel, Association G'ds. .... 70%  
 Cast Steel, outside G'ds. .... 70%  
 Malleable, good. .... 70%  
 Malleable, low grade. .... 75%  
 Fort Madison Prize Bow Brace and Fearless. .... 65%  
 Fort Madison Steel Tooth Lawn Rake. .... \$6.00  
 Gibbs. .... \$ doz., \$4.00  
 Gibbs' Aome Lawn Rake. .... \$ doz., \$4.75  
 Gibbs' Canton Lawn Rake. .... \$ doz., \$3.75  
 Gibbs' Crown Lawn Rake. .... \$ doz., \$4.00  
 Gibbs' Favorite Lawn Rake. .... \$ doz., \$5.00  
 Gibbs' Hustler No. 0. .... \$ doz., \$4.25  
 Gibbs' Hustler No. 1. .... \$ doz., \$4.40  
 Onelda Lawn Rake. .... \$ doz., \$6.00

**Razors-**

Campbell Cutlery Co. .... 50%  
 Electric Cutlery Co. .... Net prices  
 Galvanic. .... \$ doz., \$15.00  
 Jordan's AAAA, new list. .... Net prices  
 Jordan's Old Faithful, new list. .... Net prices  
 J. R. Torrey Razor Co. .... Net prices  
 Wostenholm and Butcher, \$10 to 2. .... 10%

**Razor Straps-**

See Straps, Razor.

**Reels-**

Clothes Line- .... 33%  
 Stearns' Fishing  
 Hendryx Aluminum, German Silver, Gold, Bronze, Silver, Rubber, Poplar and Salmon, Single Action, Multiplying and Quadruple, all sizes. .... 25%  
 Hendryx Single Action Series, 102P and PN, 202P and PN, 102PR and PN, 202PR and PN, 502 and 502N, 802 and 802N, 10208N, Competitor. .... 60%  
 Hendryx Multiplying and Quadruple Series, 300N and PN, 4N and PN, 2004N, 2004P and PN, 002904PN, 0924 and 0924N, 5009N and PN. .... 40%  
 Registers  
 Moore's Bronze Finishes. .... 70%  
 Moore's Electroplated. .... 75%  
 Moore's Japan. .... 75%  
 Moore's Solid Bronze. .... 65%  
 Moore's Stove Pipe. .... 33%

**Rings and Ringers-**

Bull Rings-  
 Ulrich Edw. Co., White Metal, low list. .... 50%  
 Hotchkiss' low list. .... 30%  
 Humason, Beckley & Co.'s. .... 70%  
 Peck, Stow & W. Co.'s. .... 50%  
 Sargent's. .... 75%  
 Union Nut Co. .... 65%  
 Hog Rings and Ringers  
 Note-The market on Hog Rings and Ringers is in a demoralized condition and prices are low and irregular. We therefore withdraw quotations for the present.

**Rivets and Burrs-**

Copper. .... 60%  
 Coppered Iron, Besta Brand. .... 10%  
 Iron Norway, list Nov. 18. .... 60%  
 Second Quality. .... 70%

**Rivet Sets-See Sets.****Roasting and Baking Pans-See Pans, Roasting and Baking.****Rods-**

Stair, Black Walnut. .... \$ doz 40¢  
 Stair, Brass. .... 25%

**Rollers-**

Aome Moore's Anti-Friction. .... 55%  
 Barn Door, Sargent's list. .... 60%  
 Moore's Barn Door Stay. .... 50%  
 Union Barn Door Roller. .... 70%  
 Thompson Mfg. Co.'s Lawn Rollers. .... 30%

**Rope-The following prices are f.o.b., New York or factory, and are shaded 1/2% on large lots; terms, 1 1/2% for cash.**

Manila, 7-16 in. diam. and larger. .... \$ 1/4 @ 8 1/4¢  
 Manila, 1/4 and 5-16 in. .... 8 1/4 @ 10 ¢  
 Manila, Tarred Rope. .... 7 1/4 @ 8 ¢  
 Manila, Hay Rope, Med. m. .... 8 1/4 @ 8 1/4¢  
 Sisal, 7-16 in. and larger. .... 6 1/4 @ 7 ¢  
 Sisal, 1/4 and 5-16 in. .... 7 1/4 @ 7 1/4¢  
 Sisal, Hay Rope. .... 6 1/4 @ 6 1/4¢  
 Sisal, Tarred Rope. .... 6 1/4 @ 6 ¢  
 Sisal, Medium Lath Yarn. .... 6 1/4 @ 6 ¢  
 New Zealand. .... 7-16 in. and larger. .... 5 1/4 @ 5 1/4¢  
 New Zealand, 1/4 inch. .... 6 ¢ @ 6 1/4¢  
 New Zealand, 1/4 and 5-16 in. .... 6 1/4 @ 6 1/4¢  
 New Zealand, Hay Rope. .... 5 1/4 @ 5 1/4¢  
 New Zealand, Tar'd Rope. .... 5 ¢ @ 5 1/4¢  
 Cotton Rope. .... \$ 12 @ 15 ¢  
 Jute Rope. .... \$ 5 1/4 @ 6 ¢

**Wire-**

List February, 1892. All kinds. .... 50%

**Rules-**

Boxwood. .... 30¢  
 Ivory. .... 50¢  
 Starrett's Steel Rules and Straight Edges. .... 25¢

**Sad Irons-See Irons, Sad.****Sand and Emery Paper and Cloth-**

See Paper and Cloth.

**Sash Cord-See Cord, Sash.****Sash Locks-See Locks, Sash.****Sash Weights-**

See Weights, Sash.

**Sausage Stuffers or Fillers-See Stuffers or Fillers, Sausage.****Saws-**

Note.-Extra 5@10% often given.

Atkins' Circular. .... 50¢  
 Atkins' Band. .... 50¢  
 Atkins' Cross Cut, new list. .... 40%  
 Atkins' Mulay, Mill and Drag. .... 50%  
 Atkins' One-Man Saw. .... 40%  
 Atkins' Wood Saws. .... 40%  
 Atkins' Hand Compass, &c. .... 40%  
 Disston's Circular. .... 40%  
 Disston's Cross Cut, list Jan. 1. .... 40%  
 Disston's Hand. .... 25%  
 C. E. Jennings & Co.'s. .... 25%  
 Peace Circular and Mill. .... 45%  
 Peace Cross Cuts, list Jan. 1. .... 45%  
 Peace Hand, Panel and Rip. .... 25%  
 Richardson's Circular and Mill. .... 45%  
 Richardson's Cross Cut, list Jan. 1. .... 45%  
 Richardson's Hand. .... 25%  
 Simonds' Circular Saws. .... 45%  
 Simonds' Crescent Ground Cross Cut Saws. .... 30%  
 Simonds' One Man Cross Cuts. .... 40%  
 Simonds' Gang, Mill, Mulay and Drag. .... 45%  
 Wheeler, Madden & Clemson Mfg. Co. Cross Cuts, list Jan. 1, 1893. .... 45%  
 Hand, Panel and Rip. .... 30%  
 Woodrough & McParlin. .... 45%  
 Cross Cuts, list Jan. 1, 1893. .... 45%  
 Hand, Panel and Rip. .... 25%

**Hack Saws-**

Eureka and Crescent. .... 25%  
 Griffin's, complete. .... 40%  
 Griffin's Hack Saw Blades. .... 40%  
 Star Hack Saws and Blades. .... 25%

**Scroll-**

Barnes' Builders' and Cab Makers' \$15.25%  
 Barnes' Scroll Saw Blades. .... 25%  
 Lester, complete, \$10.00. .... 25%  
 Rogers, complete, \$4.00. .... 25%

**Saw Frames-See Frames, Saw.****Saw Sets-See Sets, Saw.****Saw Tools-See Tools, Saw.****Scale Beams-**

See Beams, Scale.

**Scales-**

Chattillon's Eureka. .... 25%  
 Chattillon's Favorite. .... 40%  
 Chattillon's Grocers' Trip Scales. .... 60%  
 Family, Turnbills. .... 80%  
 Hatch, Counter, No. 171, good quality. .... \$ doz \$17.00@18.00  
 Hatch Tea, No. 161. .... \$ doz \$8.00@8.50  
 Riehle Bros' Platform. .... \$40 @ 40 1/2¢  
 Union Platform Plain. .... \$2.00@2.10  
 Union Platform, Striped. .... \$2.10@2.25  
 Standard. .... 50%

**Scissors, Fluting.**

Adjustable Box Scraper (S. R. & L. Co.) \$8.00. .... 40%  
 Box, 1 Handle. .... \$ doz \$2.00  
 Box, 2 Handle. .... \$ doz \$3.00@4.00  
 Defence Box and Ship. .... 20%  
 Foot. .... 50%  
 Ship, Common. .... \$ doz \$9.50  
 Ship, R. I. Tool Co. .... 40%

**Screen Window and Door Frames-See Frames.****Screw Drivers-**

See Drivers, Screw.

**Screws-****Bench and Hand-**

Bench, Iron. .... 55¢  
 Bench, Wood, Beech. .... \$ doz \$2.25  
 Bench, Wood, Hickory. .... 20¢  
 Hand, Wood. .... 25¢  
 Hand, Grand Rapids, list. .... 35¢  
 Coach, Lag and Hand-Rail-  
 Lag, Blunt Point, list Jan. 1, 1890. .... 80%  
 Coach and Lag, Gimlet Point, list Jan. 1, 1890. .... 80%  
 Hand Rail, Am. Screw Co. .... 75%  
 Hand Rail, H. & B. Mfg. Co. .... 70%  
 Hand Rail, Sargent's. .... 70%

**Jack Screws-**

Millers Falls. .... 50¢  
 Millers Falls, Roller. .... 50¢  
 P. S. & W. .... 35%  
 Sargent. .... 70%  
 Stearns. .... 40%

**Cork-**

Detroit Cork Screw Co. .... 33%  
 Humason & Beckley Mfg. Co. .... 40%  
 Williamson's. .... 33%  
 Williamson's Forged Worm, Applewood Handle, \$ doz., \$5.00; Rosewood, \$5.50. .... 40%

**Machine-**

Flat Head Iron. .... 70%  
 Round Head Iron. .... 65%

**Wood-**

List January 1, 1891  
 Flat Head Iron. .... 80%  
 Round Head Iron. .... 75%  
 Flat Head Brass. .... 80%  
 Round Head Brass. .... 75%  
 Flat Head Bronze. .... 80%  
 Round Head Bronze. .... 75%  
 Rogers' Drive Screws. .... 82%

**Scroll Saws-See Saws, Scroll.****Scythes-**

Grain. .... 40%  
 Grass. .... 40%

**Scythe Snaths-**

See Snaths, Scythe.

**Sets-**

Alken's Sets, Awns and Tools. No. 20, \$ doz \$10.00. .... 60%  
 Common Brad Sets. No. 42, \$10.50; No. 48, \$12.50. .... 70%  
 Fray's Awn Tool Hds. Nos. 1, \$12; 2, \$18. .... 80%  
 Henry's Combination Haft. \$ doz \$5.50  
 Millers Falls A.C. Tool Hds., No. 1, \$12; No. 4, \$12; No. 5, \$18. .... 25%  
 Stanley's Excelsior. No. 1, \$7.50; No. 2, \$4.00; No. 3, \$5.50. .... 80%

**Nail-**

Round. .... \$ gr. \$3.25  
 Square. .... \$ gr. \$4.00@4.25  
 Buck Bros. .... 27%  
 Cannon's Diamond Point. .... \$ gr. \$12.20

**Rivet-**

Regular list. .... 70%

**Saw-**

Atkins' Criterion. .... \$ doz No. 1, \$8.00  
 Atkin's Genuine. .... \$13.00, 50¢  
 Atkin's Imitation. .... \$ doz \$3.25  
 Atkin's Lever. .... \$ doz No. 1, \$8.00  
 Avery's Saw Set and Punch. .... 50%  
 Bemis & Call Co.'s Cross Cut. .... 30%  
 Bemis & Call Co.'s Plate. .... 30%  
 Bemis & Call Spring Hammer. .... 30%  
 Common Lever. .... \$ doz \$2.00, 45¢  
 Crescent. .... \$ doz \$3.00  
 Croissant (Keller), No. 1, \$15.00; No. 2, \$24.00. .... 40%  
 Disston's Star. .... 25%  
 H. H. Adams & Call Co.'s new Pat. 4 1/2 Hammer, Hotchkiss. .... \$5.50, 10%  
 Hart's Pat. Lever. .... 20%  
 Kohler's Giant Royal. .... \$ doz \$12.00  
 Kohler's Royal. .... \$ doz \$7.00  
 Leach's, No. 0, \$8.00; No. 1, \$15. .... 15¢  
 Leach's, No. 2, \$8.00. .... 15¢  
 Leopold. .... \$ doz \$15.00, 40%  
 Morrill's No. 1, \$15.00. .... 40%  
 Nos. 3 and 4, Cross Cut, \$23.00. .... 40%  
 No. 5, Mill, \$31.00. .... 40%  
 No. 10, \$15.00. .... 40%  
 No. 11, \$16.00. .... 40%  
 Nash's. .... 20%  
 Stillman's Genuine. .... \$ doz \$5.00, 70%

**Sharpeners, Knife-**

Parkins'.  
 Applewood Handles. .... \$ doz \$8.00, 50%  
 Rosewood or Cocobola. .... \$ doz \$9.00, 50%  
 Tante Mills. .... \$ gr. \$14.40, 25%

**Shaves, Spoke-**

Iron. .... 45%  
 Wood. .... 30%  
 Bailey's (Stanley R. & L. Co.). .... 80%  
 Cincinnati. .... 25%  
 Goodell's \$ doz \$9.00. .... 40%  
 Stearns. .... 40%

**Shears-**

Aome Cast Shears. .... 10%  
 American (Cast) Iron. .... 65%  
 Barnard's Lamp Trimmers. .... \$ doz \$3.75  
 Barnard, Solid Steel Blade, Jap'd. .... 75%  
 Barnard, Solid Steel Blade, Nickeled. .... 65%  
 Cast Steel Trimmers:  
 First quality. .... 80%  
 Second quality. .... 80%  
 Campbell Cutlery Co. Jap'd. .... 75%  
 Nickel Plated. .... 65%  
 Claus brand, Japanned. .... 70%  
 Claus brand, Nickeled, same list. .... 60%  
 Clipper. .... 10%  
 Davenport C. ry Co. .... 60%  
 Diamond Cast Shears. .... 10%  
 Galvanic 3 1/2 in. .... \$ doz \$1.00, 1 inch  
 Hatch Cutlery Co. Solid Steel Forged. .... 60%  
 Heintzsch's, list Dec. 1881. .... 60%  
 Heintzsch's Tailor's Shears. .... 33%  
 Howe Bros. & Hulbert, Solid Forged Ship. .... 40%  
 Seymour's, list Dec. 1881. .... 60%  
 Victor Cast Shears. .... 75%

**Tinners' Snips-**

Cast Handles, Laid with Steel. .... 40%  
 Niagara Snips and Shears. .... 20%  
 Wrt. Handles, Steel Blades. .... 20%

**Pruning Shears and Hooks**

Disston's Combined Pruning Hook and Saw. .... \$ doz \$18.00, 20%  
 Disston's Pruning Hook. .... \$ doz \$20.10%  
 Dunlap's Saw and Chisel. .... \$ doz \$4.50, 30%  
 Henry's Pruning Shears. .... \$ doz \$4.25  
 Henry's Tree Pruner. .... 50%  
 E. S. Lee & Co.'s Pruning Tools. .... 60%  
 Levin Pruner No. 1, \$15.00 \$ doz. .... 40%  
 Levin Pruner No. 2, \$21.00 \$ doz. .... 40%  
 J. Mallinson & Co., No. 1, \$5.25; No. 2, \$7.25  
 Pruning Shears, Henry's Pat. .... \$ doz \$3.25  
 Pruning Shears, Conn. Pat. .... \$2.50@3.00  
 P. S. & W. Co. .... 60%  
 Wheeler, M. & C. Co., Combination. .... \$ doz \$12.00

**Tinners' &c.-**

Shears and Snips (P. S. & W.). .... 20%  
 Snips, J. Mallinson & Co. .... 33%

**Shaves-**

Corbin's list. .... 60%  
 H. W. Co., list July 1888. .... 50%  
 Moore's Anti-Friction. .... 50%  
 Patent Roller. .... 60%  
 Patent Roller, Hatfield's. .... 70%  
 R. & E., list Dec. 18, 1885. .... 55%  
 Russell's Anti-Friction, list Dec. 18, 1885. .... 60%

**Sliding Shutter-**

Reading list. .... 60%  
 R. & E., list Dec. 18, 1885. .... 60%  
 Sargent's list. .... 70%

**Shells**

Brass Shot Shells, Club, Rival, Climax. .... 65%  
 Brass Shot Shells, list quality. .... 60%  
 First quality 4, 8, 10 and 12 gauge. .... 20%  
 First quality Rival, Club and Climax. .... 20%  
 Hands, 12, 16 and 20 gauge (7 1/2 list). .... 20%  
 Prize. .... 40%  
 Smokeless brand, 12, 10, 16 gauge. .... 35%  
 Star, Club, Rival and Climax Brands. .... 35%  
 Trap brand, 12 and 10 gauge. .... 35%  
 Shells, Loaded-  
 Standard list, July 10, 1890. .... 40%  
 2% cash, 10 days.

**Ship Tools-**

L. & I. J. White. .... 20%

**Shoes, Horse Mule, &c.-****Horse-**

Burden's, Perkins', Phoenix, Standard, Diamond State, Bryden's, &c. .... \$3.50@4.00  
 Bryden's Frog Pressure, at factory. .... \$5.00

**Mule-**

Add \$1 per keg to above prices.

**Ox Wrought-**

Ton lots. .... \$ 9¢  
 1000 m lots. .... \$ 9¢  
 500 m lots. .... \$ 9¢

**Shot-**

Drop, up to B. 25-m bag. .... \$1.10  
 Drop, up to B. 5-m bag. .... 30¢  
 Drop, B and larger, 25-m bag. .... 1.35  
 Drop, B and larger, 5-m bag. .... 35¢  
 Buck and Chilled, 25-m bag. .... 1.35  
 Buck and Chilled, 5-m bag. .... 1.35  
 Dust Shot, 25-m bag. .... 1.75  
 Dust Shot 5-m bag. .... 40¢  
 Small lots. .... \$ 1¢  
 In ton lots a bag count of 50 (25 m) and 25¢ for cash.

**Shovels and Spades-**

Ames' Shovels, Spades, &c., list Nov. 1, 1885 (Except Nos. named below). .... 20%  
 The following Nos. are subject to a discount of 27 1/2%: Nos. 548 to 572; 859 to 880; and Nos. 1004, 1009, 1014, 1019, 1024, 1027 and 1030.  
 Griffith's Black Iron. .... 50%  
 Griffith's C. S. .... 60%  
 Griffith's Solid C. S. R. Goods. .... 20%  
 Hubbard & Co., Antrim list. .... 25%  
 Hubbard & Co.'s Chisholm Pattern. .... 25%

**Shovels and Tongs-**

Brass Head. .... 60%  
 Iron Head. .... 60%

**Sieves and Sifters-**

A. & W. Sifters. .... \$ gr \$15.00  
 Bristol Metallic, S. & C. .... 50%  
 Electric Light. .... \$ gr \$1.50  
 Hunter's Genuine. .... \$ doz \$1.75, \$ gr \$12.50  
 Hunter's Imitation. .... \$ doz \$1.75, \$ gr \$15.00  
 Mann's Tin Rim. .... 50%  
 Shaker (Barber's Pat.) Flour Sifters. .... \$ gr \$21.00

**Sieves, Wooden Rim-**

Mesh 18, Nested. .... \$ doz \$0.80  
 Mesh 20, Nested. .... 95¢  
 Mesh 24, Nested. .... 1.15

**Sinks-**

Cast Iron- .... 65%  
 Standard list. .... 65%

**Wrought Steel-**

Columbus, Galvanized andenameled. .... 50%  
 Columbus Painted. .... 30%  
 New Era, Painted. .... 50%  
 New Era Galvanized andenameled. .... 70%

<b>Snaps, Harness, &amp;c.</b> Anchor T. & S. Mfg. Co., 50% Andrews, 50% Covett's Saddlery Works' Triumph, 35% Covered Spring, 50% Covett, 50% Covett, New Patent, 50% Covett, New R. E., 50% Fitch's (Bristol), 50% German, new list, 50% Hotchkiss, 10% Kelley & Woolworth's Steel Harness, 50% John Pross Snaps, 50% Sargent's Patent Guarded, 70% <b>Snaths</b> Scythe, 50% <b>Soldering Irons</b> See <i>W. Soldering</i> . <b>Spittoons Cuspidors, &amp;c.</b> Standard Fiberglass Cuspidors, 8 1/2-inch, 1/2 doz, No. 5, 38; No. 5X, 39. Spittoons, Daisy, 8-inch, No. 1, 10 and 11 inch, 30. <b>Spoke Shaves</b> See <i>Shaves, Spoke</i> . <b>Spoke Trimmers</b> See <i>Trimmers, Spoke</i> . <b>Spoons and Forks</b> Easton, Cram, Stamp, Co.'s list, 70% Buffalo, S. & Co., 38% Solid Table and Tea, Cram, Stamp, Co.'s list, 70% <b>Silver Plated</b> 4 months or 50 cash 30 days: L. Boardman & Son, Silver Co., 40, 15% Holmes & Edwards Silver Co., 40, 15% Meriden Brit. Co., Rogers, 40, 15% Reed & Barton, 40, 15% Rogers & Bros., 40, 15% O. Rogers & Bros., 40, 15% Rogers & Hamilton, 40, 15% Wm. Rogers Silver Co., 40, 15% Simpson, Hall, Miller & Co., 40, 15% <b>Miscellaneous</b> Boardman's Britannia Spoons, case lots, 60% Boardman's Nickel Silver, list July 1, 1891, 60% Britannia, 60% German Silver, 60% Nickel Silver, 60% Holmes & Edwards Silver Co., 50% No. 24 German Silver, 50% No. 30 Silver Metal, 50% No. 49 Nickel Silver, 50% No. 60 Nickel Silver, 50% No. 67 Mexican Silver, 50% Rogers & Hamilton, 40% Cimeter, Flatware, 40% Cimeter, Steel Goods, 40% Crown Hamilton, Flatware and Cutlery, 30% Steel Goods, 40% Wm. Rogers Mfg. Co., 40% 18% Rogers' German Silver, 60% 22% Rogers' Nickel Silver, 60% Rogers' Silver Metal, 60% <b>Springs, Door</b> Champion (Coll), 60% Cowell's, No. 1, 1/2 doz \$18.50, 50% Gem (Coll), list April 19, 1886, 20% Hercules, 50% Phenix, 35% Rubber, complete, 1/2 doz \$4.50, 55% Star (Coll), list April 19, 1886, 20% Torrey's Rod, 99 in, 1/2 doz \$1.20, 35% Warner's No. 1, 1/2 doz \$1.50, 30% 34.40, 50% Victor (Coll), 60% <b>Carriage, Wagon, &amp;c.</b> Elliptic, Concord, Platform and Half Scroll, 60% Cliff's Model Springs, 25% <b>Sprinklers, Law</b> Gibbs' Arc, 1/2 doz, \$12.00, 40% Gibbs' Hustler, 1/2 doz, \$6.00, 40% <b>Squares</b> Nickel-Plated, 80% Steel and Iron, 60% Try Square and T Bevels, 60% Avery's Bevel Protractor, 50% Avery's Flush Bevel Squares, 50% Dixon's Try Square and T Bevels, 50% Starrett's Micrometer Caliper Squares, 25% Winterbottom's Try and Miter, 30% <b>Squeezers</b> <b>Fodder</b> Blair's, 1/2 doz \$2.00, 40% Blair's "Climax", 1/2 doz \$1.00, 40% <b>Lemon</b> Porcelain Lined, No. 1, 1/2 doz \$8.00, 25% Wood, Common, 1/2 doz \$1.75, 25% Wood, No. 2, 1/2 doz \$3.00, 25% Dean's, No. 1, 1/2 doz \$8.50, 2, 3, 35; 3, 1.00; Queen, 2.50 Dunlap's Improved, 1/2 doz \$3.75, 20% Hotchkiss Straight Flash, 1/2 doz \$12.00, 20% Jennings' Star, 1/2 doz \$2.50, 20% King, 50% Little Giant, 50% Samuels, No. 1, \$5.00; No. 2, \$9.12, 18% The Boss, 1/2 doz \$2.50, 25% <b>Standard Fiber Ware</b> See <i>Ware, Standard Fiber</i> . <b>Stables</b> Barbed Blind, 1/2 in. and larger, 1/2 doz \$7.75, 30% Barbed Blind, 1/2 in., 1/2 doz \$8.50, 30% Fence Staples, Galvanized, 1/2 doz \$3.00, 30% Fence Staples, Plain, 1/2 doz \$3.00, 30% Grand Crossing Tack Co.'s list, 75% <b>Steels Butchers'</b> C. & A. Hoffmann's, 40% Nichols Bros., 50% <b>Steelyards</b> 40% <b>Stocks and Dies</b> Blacksmith's: Butterfield's Goods, 35% Waterford Goods, 35% Gardner, 25% Green River, 35% Lightning Screw Plate, 25% Reece's New Screw Plates, 25% Reversible Rechet, 30% <b>Stone</b> <b>Stones, Grind</b> —See <i>Grindstones</i> . <b>Scythe Stones</b> Pike Mfg. Co., list April, 1892, 35% Cleveland Stone Co., list Nov 1892, 35% <b>Oil Stones, &amp;c.</b> Pike Mfg. Co., 35% Hindostan No. 1, 1/2 doz \$8.00, 40% Sand Stone, 40% Turkey Oil Stone, 4 to 8, 10% Turkish Slips, 30% Lilly White Washita, 80% Rosy Red Washita, 80% Washita Stone, Extra, 50% Washita Stone, No. 1, 40% Washita Stone, No. 2, 40% Lilly White Slips, 80% Rosy Red Slips, 80% Washita Slips, Extra, 80% Washita Slips, No. 1, 70% Arkansas Stone, No. 1, 3 to 5 1/2 in, \$2.80 Arkansas Stone, No. 16 1/2 in, \$3.50 Lake Superior, 1/2 doz \$1.50, 15% Tantite Mills: Emery Oil, 1/2 doz, \$9.00, 50% <b>Stops, Bench</b> Cincinnati, 25% Crescent, 1/2 doz \$1.50, 25% Hotchkiss, 1/2 doz \$5.00, 10% Mills Falls, 25% Morrill's, 1/2 doz, No. 1, \$10.00; No. 2, \$11.00, 40% Stearns, 20% Terrell's Nos. 1 and 2, 1/2 doz, \$5.00, 30% Weston's, No. 1, \$10.00; No. 2, \$9.50, 10% <b>Stove Polish</b> See <i>Polish, Stove</i> . <b>Stretchers Carpet</b> Cast Iron, Steel Potatoes, 1/2 doz \$75.00, 80% Cast Steel, Polished, 1/2 doz \$2.25, 25% Socket, 1/2 doz \$1.75, 25% Bullard's, 25% <b>Strops Razor</b> Bader's, 1/2 doz \$2.00, 20% Campbell Cutlery Co., Net prices Electric Cutlery Co., Net prices Genuine Emerson, 60% Imitation, 20% Jordan's Pat. Padded, list Nov. 1, 75, 60% Lamont Combination, 1/2 doz \$4.00, 20% Torrey's, Net prices <b>Stuffer Sausage</b> Miles' Challenge, 1/2 doz \$2.00, 50% Perry, 1/2 doz, No. 1, \$15.00; No. 2, \$21.00, 60% Draw Cut No. 4, each \$30.00, 20% Enterprise Mfg. Co., list Jan 17 '93, 25% Silver's, 40% <b>Sweepers, Carpet and Lawn Carpet</b> Acme, 1/2 doz \$26.00, 40% Advance, 1/2 doz \$18.00, 40% Banner Jap'd, 1/2 doz, \$22.00; Nickel, \$24.00, 40% Grand, 1/2 doz \$36.00, 40% Gold Medal, 1/2 doz \$37.00, 40% Prize, 1/2 doz \$37.00, 40% Cosmopolitan, 1/2 doz \$37.00, 40% Furniture Protector, Jap., 1/2 doz \$24.00, 40% Furniture Protector, Nickel, 1/2 doz \$37.00, 40% Inter Ocean, 1/2 doz \$37.00, 40% Hall, 1/2 doz \$48.00, 40% Crown Jewel, No. 1, 1/2 doz \$19.00; No. 2, 1/2 doz \$21.00, 40% Domestic, 1/2 doz \$21.00, 40% Domestic, No. 2, 1/2 doz \$22.00, 40% Easy Jap'd, 1/2 doz \$22.00; Nickel, \$24.00, 40% Excelsior, 1/2 doz \$22.00, 40% Garland, 1/2 doz \$18.00, 40% Gilt Edge, 1/2 doz \$24.00, 40% Super Rapid, 1/2 doz \$24.00, 40% Grand Republic, 1/2 doz \$33.00, 40% Housewife's Delight, 1/2 doz \$15.00, 40% Imperial, 1/2 doz \$26.00, 40% Improved Parlor Queen, 1/2 doz \$24.00, 40% Japanned, 1/2 doz \$24.00, 40% Nickel, 1/2 doz \$15.00, 40% Ladies' Friend, 1/2 doz \$15.00, 40% Ladies' Friend No. 2, 1/2 doz \$16.00, 40% Model, 1/2 doz \$27.00, 40% Parlor Queen, 1/2 doz \$24.00, 40% Our Leader, 1/2 doz \$19.00, 40% Our Own, 1/2 doz \$27.00, 40% Rapid Jap'd, 1/2 doz, \$22.00; Nickel, \$24.00, 40% Rapid, 1/2 doz \$22.00, 40% Select, 1/2 doz \$24.00, 40% Standard, 1/2 doz \$24.00, 40% Supreme, 1/2 doz \$22.00, 40% The Star, 1/2 doz \$21.00, 40% Triumph, 1/2 doz \$20.00, 40% Bissell Carpet Sweeper Co. make the following rebates: 1.00 per doz. in 5 doz. lots. \$.20 per doz. in 10 doz. lots. <b>Lawn</b> Thompson Mfg. Co., 80% <b>Swings</b> Davies Lawn, 25% <b>Tacks, Brads &amp;c.</b> List October 19, 1889. Old established straight weights. Short Weight goods are sold at lower prices. Carpet Tacks: American, Blued, 47% American, Tin'd and Cop'd, 52% Steel, Bright and Blued, 47% Steel, Tinned and Coppered, 52% Swedes Iron, S. S., Blued, 40% Swedes Iron, S. S., Tinned, 47% American Iron Tacks, Domestic, 37% American Iron Tacks, Foreign, 50% Swedes Iron Tacks: S. S., Blued, 37% S. S., Tinned, 45% Lanc, Blued, 30% Lanc, Tinned, 37% Upholsterers' S. S., 47% Upholsterers' Lanc, 37% Gimp Tacks: S. S., Blued, 30% S. S., Tinned, 42% Lanc, Blued, 20% Lanc, Tinned, 35% Basket and Trimmers' Tacks: Lanc, 20% S. S., 30% Common and Patent Brads: Leathered Tacks, 20% Brush Tacks and Nails, S. S., 20% Looking Glass Tacks, S. S., 5% Picture-Frame Points, S. S., 12% Lace Tacks, Blued, 12% Lace Tacks, Tinned, 12% Finishing Nails, 52% Trunk and Clout Nails: Black, 52% Tinned or Coppered, 57% Basket Nails, 37% Chair Nails, 35% Cigar Box, 30% Tin Capped Nails, 60% <b>Miscellaneous</b> Double Point, 40% Wire Carpet Nails, 60% Bill Nye Brad Box, 40% Bonnie's Pine, 1/2 doz \$1.50, 40% Claw Handle Carpet, 1/2 doz \$4.00, 40% Home Tacks, No. 50, 1/2 case 12 cartons, \$36.00; No. 100, 1/2 case 12 cartons, \$72.00, 40% Home Nails, No. 200, 1/2 case 12 cartons, \$30.00; No. 400, 1/2 case 12 cartons, \$60.00, 40% Parlison Gilt Nails, cartoon, 50% Plymouth Rock Carpet Tacks, 60% Upholsterers' Nails, 50% <b>Wire Brads and Nails</b> Steel-Wire Brads, R. & E. Mfg. Co.'s list, 60% See also <i>Nails, Wire</i> . <b>Tanks Oil</b> Emerald, S. S. & Co.: 80-gal. \$2.75; 60-gal. \$1.11 each, 50% <b>Tapes, Measuring</b> American, 40% Chesterman's, Regular list, 25% Excelsior, Special list, 20% Spray, 40% <b>Thermometers</b> Tin Case, 80% <b>Thimble Skins</b> —See <i>Skirts</i> . <b>Ties Bale</b> —Steel. Standard Wire list, 50% <b>Tinners' Shears, &amp;c.</b> See <i>Shears, Tinners' &amp;c.</i> <b>Tinware</b> Stamped, Japanned and Piced, list Jan 20, 1887, 70% <b>Tire Benders, Upsetters, &amp;c.</b> —See <i>Benders and Upsetters Tire</i> . <b>Tobacco Cutters</b> See <i>Cutters, Tobacco</i> . <b>Tools</b> <b>Coopers'</b> Albertson Mfg. Co., 25% Barton's, 20% Beatty's, 35% Bradley's, 15% Sandusky Tool Co., 30% Shaves Cincinnati Tool Co., 20% L. & J. White, 20% <b>Lumber</b> Cant Hooks, "Blue Line", 1/2 doz \$16.00, 40% Cant Hooks, Common Finish, 1/2 doz \$14.00, 40% Cant Hooks, Mail, Socket Clasp, "Blue Line", 1/2 doz \$16.00, 40% Cant Hooks, Mail, Socket Clasp, Common Finish, 1/2 doz \$14.50, 40% Cant Hooks, Clip Clasp, "Blue Line", 1/2 doz \$14.00, 40% Cant Hooks, Clip Clasp, Common Finish, 1/2 doz \$12.00, 40% Hand Spikes, 1/2 doz 6 ft., \$15.00; 8 ft., \$20.00, 40% <b>Pike Poles, Pike &amp; Hook</b> , 1/2 doz, 12 ft., \$11.50; 14 ft., \$12.50; 16 ft., \$14.50; 18 ft., \$17.50; 20 ft., \$21.50, 40% <b>Pike Poles, Pike only</b> , 1/2 doz, 12 ft., \$10.00; 14 ft., \$11.00; 16 ft., \$13.00; 18 ft., \$16.00; 20 ft., \$20.00, 40% <b>Pike Poles, not ironed</b> , 1/2 doz, 12 ft., \$6.00; 14 ft., \$7.00; 16 ft., \$9.00; 18 ft., \$12.00; 20 ft., \$16.00, 40% Mail, Iron Socket Peavies, 1/2 doz \$19.00, 40% Ring Peavies, "Blue Line", 1/2 doz \$20.00, 40% Ring Peavies, Common, 1/2 doz \$18.00, 40% Setting Peavies, 1/2 doz \$21.00, 40% Settling Poles, 1/2 doz, 12 ft., \$14.00; 14 ft., \$15.00; 16 ft., \$17.00, 40% Swamp Hooks, 1/2 doz \$18.00, 40% Champion Steel Socket Peavies, per doz, 40% Maple Handles, 2 1/2 in. x 4 1/2, 8 ft., \$24.00, 40% Maple Handles, 2 1/2 in. x 4 1/2, 6 ft., 26.50, 40% Maple Hnds, 3 in. x 4 1/2 to 6 ft., 29.00, 40% Champion Solid or Split Socket Peavies, 40% Maple Handles, 2 1/2 in. x 4 1/2, 8 ft., \$21.00, 40% Maple Handles, 2 1/2 in. x 4 1/2, 6 ft., 23.50, 40% Maple Hnds, 3 in. x 4 1/2 to 6 ft., 26.00, 40% Champion Cant Hooks, with steel clasps, 40% Maple Handles, 2 1/2 in. x 4 1/2, 8 ft. or 5 ft., \$20.00, 40% Maple Handles, 2 1/2 in. x 4 1/2, 6 ft. or 5 ft., 21.50, 40% Maple Handles, 3 in. x 4 1/2, 6 ft. to 5 ft., 23.50, 40% Champion Cant Hooks, with malleable clasps, 40% Maple Handles, 2 1/2 in. x 4 1/2 to 5 ft., 17.50, 40% Maple Handles, 2 1/2 in. x 4 1/2 to 6 ft., 19.50, 40% Champion Lug Hook, 28.00, 40% Champion Skedding Tongs, 72.00, 40% Champion Swamp Hooks, 22.00, 40% Champion Pike Poles, ironed complete, 12 to 20 ft., 45% Cant Hook and Peavy Handles, 46% <b>Saw</b> Atkins, new list, 40% Simonds, 35% <b>Transom Lifters</b> See <i>Lifters, Transom</i> . <b>Traps</b> <b>Game</b> Blake's Patent, 40% Newhouse, 40% Onella Pattern, 75% Sensible, 33% <b>Mouse and Rat</b> Cyclone, 1/2 gr \$5.25, 40% Dandy, 1/2 doz, \$1.75, 40% Hotchkiss Metallic Mouse, 5-hole traps, 1/2 doz, 75¢; 10 full cases, 1/2 doz \$18.50, 40% Hotchkiss New Rat Killer, 1/2 gr \$16.50, 40% Ideal, 1/2 gr \$10.00, 40% Mouse, Bonanza, 1/2 doz 0.80 \$1.00, 40% Mouse, Cage, Wire, 1/2 doz \$2.50, 10% Mouse, Catch-em-alive, 1/2 doz \$2.50, 15% Mouse Wood, Choker, 1/2 doz holes, \$10.00, 40% Mouse, Round Wire, 1/2 doz \$1.50, 10% Mouse, Sensible, 33% Rat, Decor, 1/2 gr \$10.00, 40% Rat, Sensible, 33% Schuyler's Rat Killer, 1/2 gr \$15.00, 40% Waddell's Go Bang, 1/2 gr \$12.50, 40% <b>Fly</b> Balloon, Globe or Acme, 1/2 doz \$1.50, 1/2 gr \$13.50, 40% Harper, Champion or Paragon, 1/2 doz \$1.75, 1/2 gr \$16.50, 40% <b>Triers</b> Butter and Cheese, 25%	<b>Trimmers, Spoke</b> Bonney's, No. 1, \$15.00; No. 2, \$12.00, 50% Ives', No. 1, \$15.00; No. 2, \$12.00, 50% Stearns', 20% Douglas', 20% Cincinnati, 25% <b>Trunks</b> Brady's Brick, 25% Clement & Maynard's, 20% Dixon's Brk and Plastering, 25% Lothrop's Brick and Plastering, 20% Pace's Plastering, 25% Roe's Brick and Plastering, 15% Roe's Brick, 25% Worrall's Brick and Plastering, 20% Cleveland Angle Trowel, 1/2 gr, No. 1, 35¢; No. 2, 35¢; No. 3, \$1.50, net 10% Garden, 10% <b>Trucks, Warehouse, &amp;c.</b> B. L. Block Co.'s list, 40% Barner, Barrel Trucks, 40% Daisy Stove Trucks, Improved pattern, 40% <b>Thompson Mfg. Co</b> <b>Tubes, Boiler</b> See <i>Pipe</i> . <b>Twine</b> Flax Twine, BO. B. No. 9, 1/2 and 1/4 Balls, 22¢ No. 12, 1/2 and 1/4 Balls, 18¢ No. 18, 1/2 and 1/4 Balls, 17¢ No. 24, 1/2 and 1/4 Balls, 17¢ No. 36, 1/2 and 1/4 Balls, 16¢ Chalk Line, Cotton, 1/2 doz \$15.00, 15¢ Cotton Moss, 6, 8, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 244, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, 316, 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 340, 342, 344, 346, 348, 350, 352, 354, 356, 358, 360, 362, 364, 366, 368, 370, 372, 374, 376, 378, 380, 382, 384, 386, 388, 390, 392, 394, 396, 398, 400, 402, 404, 406, 408, 410, 412, 414, 416, 418, 420, 422, 424, 426, 428, 430, 432, 434, 436, 438, 440, 442, 444, 446, 448, 450, 452, 454, 456, 458, 460, 462, 464, 466, 468, 470, 472, 474, 476, 478, 480, 482, 484, 486, 488, 490, 492, 494, 496, 498, 500, 502, 504, 506, 508, 510, 512, 514, 516, 518, 520, 522, 524, 526, 528, 530, 532, 534, 536, 538, 540, 542, 544, 546, 548, 550, 552, 554, 556, 558, 560, 562, 564, 566, 568, 570, 572, 574, 576, 578, 580, 582, 584, 586, 588, 590, 592, 594, 596, 598, 600, 602, 604, 606, 608, 610, 612, 614, 616, 618, 620, 622, 624, 626, 628, 630, 632, 634, 636, 638, 640, 642, 644, 646, 648, 650, 652, 654, 656, 658, 660, 662, 664, 666, 668, 670, 672, 674, 676, 678, 680, 682, 684, 686, 688, 690, 692, 694, 696, 698, 700, 702, 704, 706, 708, 710, 712, 714, 716, 718, 720, 722, 724, 726, 728, 730, 732, 734, 736, 738, 740, 742, 744, 746, 748, 750, 752, 754, 756, 758, 760, 762, 764, 766, 768, 770, 772, 774, 776, 778, 780, 782, 784, 786, 788, 790, 792, 794, 796, 798, 800, 802, 804, 806, 808, 810, 812, 814, 816, 818, 820, 822, 824, 826, 828, 830, 832, 834, 836, 838, 840, 842, 844, 846, 848, 850, 852, 854, 856, 858, 860, 862, 864, 866, 868, 870, 872, 874, 876, 878, 880, 882, 884, 886, 888, 890, 892, 894, 896, 898, 900, 902, 904, 906, 908, 910, 912, 914, 916, 918, 920, 922, 924, 926, 928, 930, 932, 934, 936, 938, 940, 942, 944, 946, 948, 950, 952, 954, 956, 958, 960, 962, 964, 966, 968, 970, 972, 974, 976, 978, 980, 982, 984, 986, 988, 990, 992, 994, 996, 998, 1000, 1002, 1004, 1006, 1008, 1010, 1012, 1014, 1016, 1018, 1020, 1022, 1024, 1026, 1028, 1030, 1032, 1034, 1036, 1038, 1040, 1042, 1044, 1046, 1048, 1050, 1052, 1054, 1056, 1058, 1060, 1062, 1064, 1066, 1068, 1070, 1072, 1074, 1076, 1078, 1080, 1082, 1084, 1086, 1088, 1090, 1092, 1094, 1096, 1098, 1100, 1102, 1104, 1106, 1108, 1110, 1112, 1114, 1116, 1118, 1120, 1122, 1124, 1126, 1128, 1130, 1132, 1134, 1136, 1138, 1140, 1142, 1144, 1146, 1148, 1150, 1152, 1154, 1156, 1158, 1160, 1162, 1164, 1166, 1168, 1170, 1172, 1174, 1176, 1178, 1180, 1182, 1184, 1186, 1188, 1190, 1192, 1194, 1196, 1198, 1200, 1202, 1204, 1206, 1208, 1210, 1212, 1214, 1216, 1218, 1220, 1222, 1224, 1226, 1228, 1230, 1232, 1234, 1236, 1238, 1240, 1242, 1244, 1246, 1248, 1250, 1252, 1254, 1256, 1258, 1260, 1262, 1264, 1266, 1268, 1270, 1272, 1274, 1276, 1278, 1280, 1282, 1284, 1286, 1288, 1290, 1292, 1294, 1296, 1298, 1300, 1302, 1304, 1306, 1308, 1310, 1312, 1314, 1316, 1318, 1320, 1322, 1324, 1326, 1328, 1330, 1332, 1334, 1336, 1338, 1340, 1342, 1344, 1346, 1348, 1350, 1352, 1354, 1356, 1358, 1360, 1362, 1364, 1366, 1368, 1370, 1372, 1374, 1376, 1378, 1380, 1382, 1384, 1386, 1388, 1390, 1392, 1394, 1396, 1398, 1400, 1402, 1404, 1406, 1408, 1410, 1412, 1414, 1416, 1418, 1420, 1422, 1424, 1426, 1428, 1430, 1432, 1434, 1436, 1438, 1440, 1442, 1444, 1446, 1448, 1450, 1452, 1454, 1456, 1458, 1460, 1462, 1464, 1466, 1468, 1470, 1472, 1474, 1476, 1478, 1480, 1482, 1484, 1486, 1488, 1490, 1492, 1494, 1496, 1498, 1500, 1502, 1504, 1506, 1508, 1510, 1512, 1514, 1516, 1518, 1520, 1522, 1524, 1526, 1528, 1530, 1532, 1534, 1536, 1538, 1540, 1542, 1544, 1546, 1548, 1550, 1552, 1554, 1556, 1558, 1560, 1562, 1564, 1566, 1568, 1570, 1572, 1574, 1576, 1578, 1580, 1582, 1584, 1586, 1588, 1590, 1592, 1594, 1596, 1598, 1600, 1602, 1604, 1606, 1608, 1610, 1612, 1614, 1616, 1618, 1620, 1622, 1624, 1626, 1628, 1630, 1632, 1634, 1636, 1638, 1640, 1642, 1644, 1646, 1648, 1650, 1652, 1654, 1656, 1658, 1660, 1662, 1664, 1666, 1668, 1670, 1672, 1674, 1676, 1678, 1680, 1682, 1684, 1686, 1688,
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**Silver Plated, Hollow**  
4 mo, or 5¢ cash in 30 days.  
Meriden Britannia Co. .... 40¢  
Reed & Barton ..... 40¢  
Rogers & Brother ..... 40¢  
Simpson, Hall, Miller & Co. .... 40¢  
Hartford Silver Plate Co. .... 40¢  
William Rogers Mfg. Co. .... 40¢

**Washers—**  
Size hole. .... 5-16 3/4 1/2 5/16 1/4  
Washers. .... 5/16 1/4 3/8 1/2  
In lots less than 2000, 5¢, add 1/4¢, 5-1/2 boxes 1¢ to list.

**Whips**  
American Whip Co.: Length. 4 1/2 5 5 1/2 6 6 1/2 7 7 1/2 8 ft.  
X. L. Whalebone Driving. .... \$18.00 20.00 22.00 24.00 27.00 30.00 33.00 36.00  
Eureka, Two-thirds Whalebone. .... 15.00 16.50 18.00 20.00  
Bull Bone, Half-length Whalebone. .... 11.00 12.00 13.00 15.00  
American Standard. .... 8.00 8.50 9.50 10.50 12.00 13.50 15.00 16.50  
True Grip, Raw Hide Center. .... 6.00 6.00 6.50 7.00 7.50 8.00  
New Name, Stocked Java, Black and White Colored. .... 6.00  
Americus, 93 Pen Whip. .... 6.00  
Gents' Light Driving No. 111. .... 6.00  
Gents' Light Driving No. 106. .... 5.00  
Hand-made Stocked Java No. 103. .... 8.75 4.00  
A large variety of cheaper grades. .... 50¢ to \$3.00  
Team Whips. .... \$2.00 to \$7.50  
Toy Whips. .... \$2.00 to \$12.00  
Hardware Assortment, 10/American, 75 Whips for \$50.00. .... \$2.50 to \$12.00

### Wire and Wire Goods—

#### Iron—

Market, .....

### Washer Cutters—

See Cutters, Washers.

### Water Coolers—

See Coolers, Water.

### Wedges—

Iron. .... \$ 2 1/2 to 2 3/4  
Steel. .... \$ 3 to 3 1/2

### Weights Sash—

Ton weights at foundry, 7 ton, \$15.00 to 18.00

### Well—See Pumps Galvan—

### Wheels Well—

8 in. \$2.00; 10 in. \$2.50; 12 in. \$2.75

### Wire Cloth and Netting—

Galvanized Wire Netting. .... 80¢ to 10¢ 1/2

### Wire Barb—

See Trade Report.

### Wire Rope—See Rope, Wire.

### Wrenches—

American Adjustable. .... 40¢  
Baxter's Adjustable "S". .... 40¢ to 50¢  
Baxter's Diagonal. .... 7¢  
Coe's Genuine. .... 50¢ to 10¢  
Coe's "Mechanics". .... 50¢ to 10¢  
Girard Standard. .... 65¢ to 70¢  
Lamson & Sessions' Engineers'. .... 60¢ to 10¢  
Lamson & Sessions' Standard. .... 70¢ to 10¢

### Br. & Ann. Nos. 0 to 18.

Cop'd, Nos. 0 to 18. 75¢ to 10¢  
Galv., Nos. 0 to 18. 75¢ to 10¢  
Tin'd, Nos. 0 to 18. 70¢ to 10¢

Extra 50¢ 10¢ often given and low net prices often made on large lots.

Stone, Br. and Ann'd. .... 80¢  
Nos. 16 to 18. .... Extra 10¢  
Nos. 19 to 20. .... 82¢ to 85¢ often given.  
Annealed Wire on Spools. .... 60¢  
Brass, list Jan. 18, 1884. .... 40¢ to 50¢  
Cast Steel Wire. .... 60¢  
Copper, list Jan. 18, 1884. .... 40¢ to 50¢  
Galvanized Fence. .... 75¢ to 10¢  
Galv. Annealed & Tin on Spools. .... 60¢ to 85¢  
Main's Brass and Cop. on Spools. .... 50¢ to 55¢  
Steel Music Wire, 12 to 30, imported. .... 60¢ to 70¢  
Stub's Steel Wire. .... \$8.00 to 2, 30¢  
Tate's Spooled, Tin'd & Annealed. .... 60¢ to 65¢  
Tate's Spooled Cop. and Brass. .... 50¢  
Thaned Broom Wire, 18 to 21, 1/2 to 1 1/4  
Wire Clothes Line, see Lines.  
Wire Picture Cord, see Cord.

### Bright Wire Goods—

Standard list. .... 90¢ to 90¢ 15¢

### Wire Cloth and Netting—

Galvanized Wire Netting. .... 80¢ to 10¢ 1/2

Painted Screen Cloth 100 ft. \$1.45 to \$1.60

### Wire Barb—

See Trade Report.

### Wire Rope—See Rope, Wire.

### Wrenches—

American Adjustable. .... 40¢  
Baxter's Adjustable "S". .... 40¢ to 50¢  
Baxter's Diagonal. .... 7¢  
Coe's Genuine. .... 50¢ to 10¢  
Coe's "Mechanics". .... 50¢ to 10¢  
Girard Standard. .... 65¢ to 70¢  
Lamson & Sessions' Engineers'. .... 60¢ to 10¢  
Lamson & Sessions' Standard. .... 70¢ to 10¢

Girard Agricultural. .... 75¢ to 10¢ 5¢  
Lamson & Sessions' Agric'l. .... 80¢ to 10¢  
W. & B. Diamond. .... 50¢ to 55¢  
Acme, Bright. .... 40¢ to 45¢  
Acme, Nickel. .... 40¢ to 45¢  
Aiken's Pocket (Bright). .... \$6.00, 50¢ to 10¢  
Alligator. .... 50¢  
Always Ready. .... 25¢ to 30¢  
Bemis & Call's:  
Adjustable S. .... 35¢ to 55¢  
Brigg's Pattern. .... 40¢ to 45¢  
Combination Black. .... 40¢ to 45¢  
Combination Bright. .... 40¢ to 45¢  
Cylinder or Gas Pipe. .... 45¢ to 50¢  
Extra Heavy. .... 45¢ to 50¢  
Merrick's Pattern. .... 45¢ to 50¢  
No. 3 Pipe Bright. .... 55¢  
Bit Wrench, Adj., Tatum's. .... \$2.25, 25¢ to 10¢

### Boardman's

Cincinnati Brace Wrenches. .... 25¢ to 10¢

Diamond Steel. .... 55¢ to 60¢

Donohue's Engineer. .... 20¢ to 40¢

Electric. .... 70¢ to 10¢

Hercules. .... 70¢ to 10¢

Taft's Vise Wrench. .... 55¢ to 10¢ 5¢

The Favorite Pocket. .... \$4.00, 40¢

Walker's. .... 55¢ to 60¢

Webster's Pat. Combination. .... 25¢

### Wringers, Clothes

Am. Wringer Co. list, July 2, 14. 2¢ cash

Colby Wringer Co. list, May 1, 14. 2¢ cash

Lovell Mfg. Co. list, July 1, 1892. 2¢ cash

Peerless Mfg. Co. list, Feb. 1892. 2¢ cash

National Wringer & Mfg. Co. list, June 1, 1892. 2¢ cash

### Wrought Goods

Staples, Hooks, &c., list, March 17, 1892. 85¢ to 10¢ 5¢ 15¢

## Paints, Oils and Colors.—Wholesale Prices.

### Animal and Vegetable

#### Oils—

Linseed, City, raw, per gal. .... 54 @ 55  
Linseed, City, boiled. .... 57 @ 58  
Linseed, Western, raw. .... 53 @ 54  
Lard, City, Extra Winter. .... 55 @ 56  
Lard, City, Prime. .... 53 @ 54  
Lard, City, Extra No. 1. .... 48 @ 49  
Lard, City, No. 1. .... 46 @ 47  
Lard, Western, prime. .... 52 @ 53  
Cotton-seed, Crude, prime. .... 29 @ 30  
Cotton-seed, Crude, off grades. .... 26 @ 28  
Cotton-seed, Summer Yellow, prime. .... 30 @ 32  
Cotton-seed, Summer Yellow, off grades. .... 30 @ 32  
Sperm, Crude. .... 60 @ 62  
Sperm, Natural Spring. .... 60 @ 62  
Sperm, Bleached Spring. .... 65 @ 67  
Sperm, Natural Winter. .... 65 @ 67  
Sperm, Bleached Winter. .... 70 @ 72  
Whale, Crude. .... 40 @ 42  
Whale, Natural Winter. .... 40 @ 42  
Whale, Bleached Winter. .... 45 @ 47  
Whale, Extra Bleached. .... 47 @ 49  
Sea Elephant, Bleached Winter. .... 26 @ 28  
Menhaden, Crude, Sound. .... 25 @ 26  
Menhaden, Crude, Southern. .... 25 @ 26  
Menhaden, Light Pressed. .... 30 @ 31  
Menhaden, Bleached Wter. .... 35 @ 36  
Menhaden, Extra Bleached. .... 37 @ 38  
Tallow, City, prime. .... 43 @ 45  
Tallow, Western, prime. .... 40 @ 42  
Cocoanut, Ceylon. .... 54 @ 56  
Cocoanut, Ceylon. .... 54 @ 56  
Cod, Domestic. .... 34 @ 36  
Cod, Foreign. .... 36 @ 38  
Red Elaine. .... 35 @ 38  
Red Saponified. .... 44 @ 46  
Bank. .... 28 @ 30  
Straits. .... 29 @ 31  
Olive, Italian, bbls. .... 58 @ 60  
Neatsfoot, prime. .... 60 @ 65  
Falm, prime, Lagos. .... 54 @ 56

#### Mineral Oils—

Black, 20 gravity, 25 @ 30

cold test. .... per gal 7 @ 7 1/4

Black, 20 gravity, 15 cold

test. .... 7 @ 8

Black, 20 gravity, summer .. 54 @ 56

### Paints and Colors—

Barytes, Foreign, b ton. \$22.00 @ 24.00

Barytes, Amer. floated. 20.00 @ 22.00

Barytes, Amer. No. 1. 18.00 @ 20.00

Barytes, Amer. No. 2. 13.00 @ 15.00

Barytes, Amer. No. 3. 11.00 @ 12.00

Blue, Celestial. 6 @ 8

Blue, Chinese. 49 @ 50

Blue, Prussian. 25 @ 26

Blue, Ultramarine. 8 @ 25

Brown, Spanish. 3 @ 1

Brown, Vandyke, Amer. 3 @ 3 1/2

Brown, Vandyke, English. 6 @ 8

Carmin, No. 40, in bulk. 2.00 @

Carmin, No. 40, in boxes or barrels. 2.10 @

Carmin, No. 40, in ounce bottles. 3.00 @

Chalk, in bulk. 1.75 @ 2.00

Chalk, in bbls. \$100 bbl. 33 @ 40

China Clay, English. 12 @ 16

Cobalt Oxide, prep'd. 13.00 @ 18.00

Cobalt Oxide, black. 9.00 @ 11.00

lots 100 b. 1.90 @

less 100 b. 1.96 @

Green, Paris, in bulk. 23 @ 23

Green, Paris, 170 @ 175 b. 23 1/2

kegs. .... 23 1/2

Rebates, —3¢ @ 10 on lots of 10,000 b or over; 2¢ @ 4000 to 10,000 b; 2¢ on 2000 to 4000 b; 1¢ @ 1000 to 2000 b; 1¢ on 500 to 1000 b purchased during the season.

Green, Chrome, ordinary. 6 @ 12

Green, Chrome, pure. 22 @ 25

Lead, Eng., B.B. white. 7 @ 8

Lead, Amn. White. .... 4 1/2 @ 4 3/4

Dry. .... 4 1/2 @ 4 3/4

In Oil. .... 5 1/2 @ 6 1/2

Lead, White, in oil, 25 b tin

add to keg price. .... @ 1/2

Lead, White, in oil, 12 1/2 b tin

add to keg price. .... @ 1

Lead, White, in oil, 1 to 5 b as

sorted tins, add to keg price. .... @ 2 1/2

### Lead, Red, bbls. and 1/2 bbls.

54 @ 56

Lead, Red, kegs. .... 54 @ 56

Litharge, bbls. and 1/2 bbls. .... 54 @ 56

Ocher, Rochelle. .... 1.35 @ 1 1/4

Ocher, French Washed. .... 1 1/4 @ 2 1/4

Ocher, German Washed. .... 1 1/4 @ 2

Ocher, American. .... 1 1/4 @ 1 1/2

Orange Mineral, English. .... 7 1/2 @ 8

Orange Mineral, French. .... 10 @ 10 1/2

Orange Mineral, German. .... 7 1/2 @ 8

Orange Mineral, American. .... 7 1/2 @ 8

Red, Indian, English. .... 5 @ 15

Red, Indian, American. .... 2 @ 5

Red, Turkey. .... 8 @ 14

Red, Venetian, American. .... 7 @ 10

Red, Venetian, English. .... \$100 b. .70 @ 1.00

Sienna, Italian, Burnt and Powder. .... 1.10 @ 1.35

Sienna, Ital., Burnt Lumps. .... 1 1/4 @ 3 1/4

Sienna, Ital., Raw, Powder. .... 4 1/2 @ 5 1/2

Sienna, Ital., Raw, Lumps. .... 1 1/4 @ 3 1/4

Sienna, American, Raw. .... 1 1/4 @ 1 1/2

Sienna, American, Burnt and Powdered. .... 1 1/4 @ 1 1/2

Talc, French. .... 1 1/4 @ 1 1/2

Talc, American. .... 1 1/4 @ 1 1/2

Terra Alba, English. .... 65 @ 75

Terra Alba, American No. 1. .... 65 @ 75

Terra Alba, American No. 2. .... 45 @ 50

Umber, Turkey, Burnt and Powdered. .... 2 1/4 @ 3 1/4

Umber, Turkey, Raw and Powdered. .... 2 1/4 @ 3 1/4

Umber, Turkey, R/W Lumps. .... 2 1/4 @ 3 1/4

Umber, Turkey, Bnt. Amer. .... 1 1/4 @ 1 1/2

Umber, Turkey, R/W Amer. .... 1 1/4 @ 1 1/2

Yellow, Chrome. .... 10 @ 25

Vermillion, American Lead. .... 11 @ 12

Vermillion, Chinese, bulk. .... 43 @ 45

Vermillion, Quicksilver, bags. .... 44 @ 45

Vermillion, Quicksilver sm'r pkgs. .... 52 @ 60

Vermillion, English Import. .... 55 @ 60

Vermillion, Imitation, Eng. .... 8 @ 30

Vermillion, Trieste. .... 80 @ 85

Vermillion, Chinese, bulk. .... 85 @ 100

Whiting Common, \$100 b. .... 40 @ 45

Whiting Gliders. .... 60 @ 55

Zinc, American, dry. .... 8 1/2 @ 9 1/2

Zinc, French, Red Seal. .... 7 @ 7 1/2

### Zinc, French, Green Seal.

8 1/2 @ 9

Zinc, French, V. M. X. .... 6 @ 7

Zinc, Antwerp, Red Seal. .... 8 @ 8 1/2

Zinc, Antwerp, Green Seal. .... 6 1/2 @ 7 1/2

Zinc, German, L. Z. O. .... 5 @ 5 1/2

Zinc, V. M. in Poppy Oil, G. Seal, lots of 1 ton and over. .... 10 1/2 @ 11

lots less than one ton. .... 11 @ 11 1/2

Zinc, V. M. in Poppy Oil, Red Seal. .... 10 1/2 @ 11

lots of 1 ton and over. .... 10 1/2 @ 11

lots of less than 1 ton. .... 10 1/2 @ 11

Discounts.—French Zinc.—Discounts on buyers of 10 bbl. lots of one or assorted grades, 15¢; 25 bbls. 2¢; 50 bbls. 4¢. No discount allowed on less than bbl. lots.

### Colors In Oil—

Black, Drop, Frankfort. .... 25 @ 30

Black, Drop, English. .... 12 @ 15

Black, Drop, Domestic. .... 7 @ 10

Black, Lamplack, Best. .... 20 @ 35

Black, Lamplack, Common. .... 7 @ 13

Black, Ivory. .... 35 @ 40

Blue, Chinese. .... 20 @ 45

Blue, Prussian. .... 12 @ 18

Blue, Ultramarine. .... 12 @ 18

Brown, Vandyke. .... 7 @ 12

Green, Chrome. .... 8 @ 13

Green, Paris. .... 16 @ 18 1/2

Sienna, Raw. .... 7 @ 14

Sienna, Burnt. .... 7 @ 14

Umber, Raw. .... 7 @ 10

Umber, Burnt. .... 7 @ 10

### Putty—

In barrels and 1/2 bbls. .... 0.13 @ 0.14

In tubs. .... 0.13 @ 0.14

In tin cans. .... 0.13 @ 0.14

In bladders. .... 0.13 @ 0.14

### Spirits Turpentine

In regular bbls. .... 30 1/2 @ 31

In machine bbls. .... 31 @ 31 1/2

JULY 18, 1894.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report.

## Conclusions

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